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高等职业教育“十二五”国家级规划教材（物流管理专业）

物流专业英语

(第4版)

庄佩君　主　编
刘　阳　施　敏　副主编
王晓萍　叶彩鸿　张碧君　张向阳　参　编

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内 容 简 介

本书根据物流专业体系设计专业英语知识和能力培养的教学框架，语料内容涵盖了物流体系各知识板块，并体现了理论、实操和案例的结合。本书内容包括了物流系统、供应链管理、零售业物流、货运管理、库存管理、物流信息、仓储管理、物料搬运、包装、实体配送、物流函电和物流单证共 12 个板块（13 章），17 个附录。

本书采用了“主、副”课文制。每章分三课，前二课为主课文，第三课为副课文。第一课侧重基本知识，第二课侧重相关实操活动和管理活动，编辑对主课文从注解和练习两个方面进行了重点处理，用作教师课内重点讲解的内容。第三课侧重新技术或案例，介绍物流专业相关的新技术、新理念和一些国际著名企业的个案分析，主要供学有余力的学生课后自学或学生英文程度较好的学校选择授课。

本教材可作为应用型本科院校、高职高专院校相关专业和物流培训的教材，也可供物流从业人员自学专业英语使用。

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Preface 前言

本书为物流专业英语教材，编者在前三版的基础上进行了锤炼和完善。体例和内容设计体现专业特色，即物流专业体系对英语知识和能力培养的教学要求。内容涵盖物流体系各知识板块，包括物流系统、供应链管理、零售业的物流管理、货运管理、库存管理、物流信息、仓储管理、物料搬运、包装、实体配送、物流函电和物流单证共 12 个板块。语料中专业知识和英语知识规范，注释准确简洁，专业和语言知识安排循序渐进，容量适度，难易合适。

采用模块化编写体例，柔性编排设计，以适应各地域物流经济情况、学校教学侧重点和学时安排、学生英文基础程度等差异。全书共 12 个板块（13 章），每章分三课，第一课侧重基本知识，第二课侧重相关实操活动和管理活动，第三课侧重新技术或案例。教师可根据本地物流经济、本校物流专业侧重、学生英语基础和兴趣，以及教师本人的教学擅长等特点进行模块和课文组合。

关注近几年物流理论和实践的进展和服务业和零售业物流的快速发展。在本教材中一方面突出流程管理（实物流、信息流和订单流等），物流新技术和新设备，对国际物流、尤其是国际货运代理业的重视；另一方面关注零售业和商贸物流等新型物流活动，增加了章节（第 3 章），并在其他章节的案例中关注与服务业相关的物流活动。

按照“教、学、做”一体化原则，体现物流理论、实操和案例的结合，强调实践操作相关的英语能力。简化理论部分，语言简练准确，结合物流实践活动、技术和案例，语料尽可能丰富生动。重视物流职业活动相关的英语表达，注重物流生产的口语交际、表格和单证操作等。文本材料体现物流管理先进的新知识和新技术，在专业学习中增加英语学习兴趣和动力。

每篇课文后的练习用以巩固专业英语的语言知识，提高学生的英语能力，思考题紧扣课文内容以促进对有关内容的掌握。教师可视学生情况将思考题布置为口头或书面回答，以加强学生的口语或写作能力。课堂活动设计有利于活跃课堂气氛，增加教师与学生，学生与学生之间的互动，既巩固专业知识又培养英语交际能力，这也是本教材的一大特点。增加课文的语音材料，在上一版的听力练习基础上，进一步丰富课文语音资料。

本书相关资源请登录华信教育资源网免费下载（www. hxedu. com.cn）。

本书紧密结合专业知识，结构严谨，是物流专业教师与英语教师合作的结晶，既保证了专业知识的系统性，又保证了英语语料和练习具有较高的效用。本书不仅是物流专业学生学习专业英语的优秀教材，也是高等学校工商管理类专业学生学习物流专业知识，提高专业英语水平不可多得的读本。本书附有详细的教师参考用书和多媒体课件，方便教师授课。

本书由宁波大学物流系庄佩君教授担任主编，海运学院物流系刘阳老师和外语学院

施敏副教授担任副主编，参加编写的还有宁波大学物流系王晓萍、叶彩鸿和张向阳老师，宁波大学科技学院物流系的张碧君老师。各位编者长期从事物流管理课的双语教学和专业英语教学。

本教材的编写结合了使用第 3 版的许多教师的反馈意见，在此表示衷心的感谢，并敬请各位读者继续对本教材提出宝贵意见。

编　者

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Chapter 1 Logistics Management



Chapter Outline

Part I Material Flow and Information Flow
- Definition of Logistics
- Material Flow
- Case Study of Xerox
- Information Flow

Part II The Relationship of Logistics Activities to Logistics Costs
- Customer Service Levels
- Transportation Costs
- Warehousing Costs
- Order Processing /Information Systems Costs
- Lot Quantity Costs
- Inventory Carrying Costs

Part III Supplementary Reading：*Replenishment of Cruise Ships*
- The Replenishment of Cruise Ships is Daunting
- Material Requirement of a Cruise Ship
- Distribution and Material Handling
- Purchasing and Supplier Management

Part I　Material Flow and Information Flow

Definition of Logistics

Logistics is the task of managing two key flows:

- *Material flow* of the physical goods from suppliers through the distribution centers to stores;
- *Information flow* of demand data from the end-customer back to purchasing and to suppliers, and supply data from suppliers to the retailer, so that material flow can be accurately planned and controlled.

Managing material flow and information flow is a key part of the overall task of logistics management. The definition for logistics can be described as:

The task of coordinating material flow and information flow across the supply chain.

Material Flow

Coordination of material flows

The aim of logistics management is to keep materials flowing from source to end-customer. The parts shall be moved through the supply chain as quickly as possible. In order to prevent local increase of inventory, flow must be arranged so that parts move in an integrated way. The term often used is synchronous. Caterpillar Inc. makes complex earth-moving equipment, and there are literally thousands of component parts and subassemblies that must come together in the final assembly processes. The vision is that parts and subassemblies should flow continuously through the supply chain, all orchestrated like a ballet.

Case Study of Xerox describes how one company re-engineered material flow in its distribution system.

Case Study of Xerox

After they introduced ‘just-in-time’ production systems, Xerox plant making photocopiers at Venrey in Holland started to consider the finished product inventory. Historically, stocks of finished products had been ‘managed’ by trying to increase or decrease sales as stocks developed. The objective of the next move for Xerox became clear: making only what you need when you need it, then shipping direct to the

customer. But the key question had to be answered: just-in-time for what? The answer is – the end-customer. There are three types of delivery were needed:

Three types of delivery

- Commodity products should be delivered to the stores.
- Middle-range products were required in five days.
- Larger products that had to be integrated into existing customer processes and systems had to be planned months ahead: but the quoted delivery date had to be met 100 percent.

This would lead to different inventory management in logistics. Fig. 1-1 shows a traditional inventory management on the left. Most of the stock was held in local depots waiting for customer orders. If the mix had been incorrectly forecast, too many of the wrong products were in plentiful supply, while needed products were unavailable. Further, replacement products would take a long time to fight their way through the pipeline.

Problem of traditional flow management

A new 'jut-in-time' strategy was needed to make logistics more responsive. This strategy had a deep effect on the material flow management, pushing much of the inventory away from the end-customer. Instead, inventory was mostly held further upstream, where it could be finally made to known orders, and where it had lower value. It would be possible to remove several stages of the distribution process, thereby eliminating some of the sources of inventory.

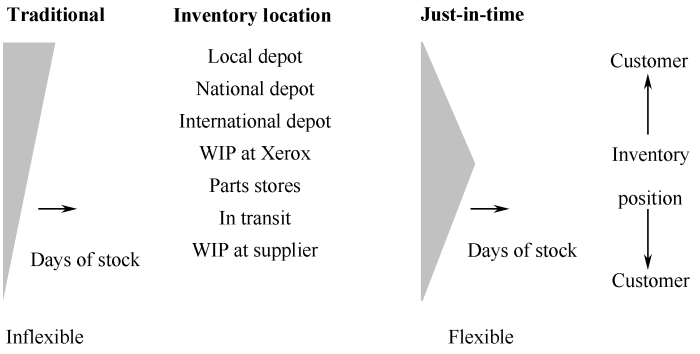
New strategy of materials stocking more in upstream

For commodity products, Xerox used the term *deliver JIT*: that is, product had to be delivered from stock. Where sales forecasts are traditionally poor, the challenge was one of flexibility and speed of manufacture. For mid-range products, it was unrealistic to hold 'just in case' inventories of products which are too complex to be made quickly. Instead, *finish JIT* was the term to describe the new policy of building semi-finished products with the minimum of added value, and being able to complete and deliver the product in the five-day target. Finally, *build JIT* was the term used to describe the new concept of building larger products quickly within a defined lead time.

Three new types of JIT

The impact of the new concept on the downstream processes can be judged from Fig.1-1. While the traditional inventory policy shows a maximum number of days of stock (shown in the shaded area) at finished product level, this is risky. We are more likely to know precisely what the end-customer wants at the late process. Postponing decisions until as late as possible in the process can help reduce inventory.

Decision postponing



Note: WIP = work in progress, i.e. products being worked on, but not yet ready for sale.
Shaded areas indicate days of stock.The wider the area, the more days of stock in that position

Fig. 1-1 Xerox: the impact on inventories

Information Flow

End-customer's demand

It is all good to get materials flowing and movement synchronized, but supply shall respond in time with the end-customer's needs. It is the end-customer's demand signals that cause the supply chain to respond. By sharing the end-customer demand information across the supply chain, we create a *demand chain*, focused on customer value. Information technology enables the rapid sharing of demand and supply data at increasing levels of detail. The aim is to integrate such demand and supply data so that an increasingly accurate picture is obtained about the nature of business processes, markets and end-customers.

Data sharing and integrating

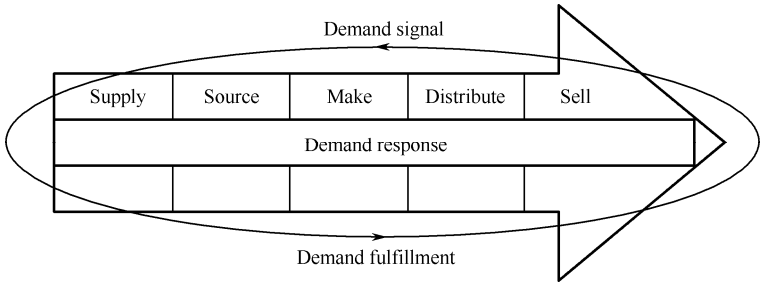


Fig. 1-2 Integrating demand and supply chains

Such integration across the supply chain will help meeting demand in the market with a maximum of dependability, and minimum of inventory.

Fig.1-2 gives a conceptual model of how supply chain processes are integrated together in order to meet end-customer demand. Demand signals are shared across the chain, and shall not be understood as 'sell'

process. Satisfying demand is also regarded as an integrated process, as materials are moved from one process to the next in a seamless flow. Information is the 'glue' that binds the supply chain processes together.

New Words and Expressions

coordinate [kəu'ɔ:dineit] *v.*	使协调，使调和；协调，协同
end-customer ['kʌstəmə] *n.*	最终客户
component [kəm'pəunənt] *n. adj.*	成分，零件；组成的，成分的
subassembly ['sʌbə'sembli] *n.*	部件，组件；子组件部件
vision ['viʒ'n] *n.*	愿景
re-engineer [ri,endʒi'niə] *v.*	重新设计，重组
forecast ['fɔ:kɑ:st] *v. n.*	预报，预测
plentiful ['plentiful] *adj.*	丰富的，充沛的
responsive [ri'spɔnsiv] *adj.*	响应的，反应灵敏的
eliminate [i'limineit] *v.*	排除, 消除，除掉
flexibility [,fleksi'biliti] *n.*	柔性，灵活性
postpone [,pəust'pəun] *v.*	延期，推迟
integration [,inti'greiʃən] *n.*	整合，一体化

Notes

1．commodity products 商品，日用品

2．middle-range products 中间产品，中间件

3．replacement products 补给产品

4．Instead, inventory was mostly held further upstream, where it could be finally made to known orders, and where it had lower value.

相反的，库存大多被存放在更上游之处，在那里按照已知订单生产产品，并且价值较低。

5．Postponing decisions until as late as possible in the process can help reduce inventory.

应尽可能晚地延迟决策，从而有助于减少库存。（解释：制造延迟是指推迟最终产品的形成，其基本观点是在获知客户的精确需求和购买意向之前，尽量使产品保持中性及非承诺状态，制造相当数量的标准产品或基础产品以实现规模化经济，当收到客户订单后，才立即从事产成品的生产装配，这样可以满足需求的多样性和缩短交货期。）

6．Such integration across the supply chain will help meeting demand in the market with a maximum of dependability, and minimum of inventory.

这种对整个供应链的整合将有助于实现市场需求的最大可靠性和最小库存。（解释：对供应链中的某个企业而言，其市场供给的可靠性要求越高，对安全库存的要求就最高，从而会带来库存量的增加。但通过对整个供应链的整合，就有可能在提高整个供应链供应可靠性的同时降低整个供应链的库存量。换言之，全局优化往往比局部优化更胜一筹。）

Exercises

I. Phrases translation

客户订单	最终用户
供应链管理	货物流
分销系统	半成品
“准时生产”	库存
需求信息	准时配送
快速响应	延迟决策
整合过程	中间产品
重组物流	交货日期

II. Fill in the blanks and put the sentences into Chinese

1. _____ and _____ are key parts of the overall task of logistics management.

2. The aim of logistics management is to keep materials flowing from _____to _____.

3. Historically, stocks of finished products had been ‘managed’ by trying to _____ or decrease sales as stocks developed.

4. It is_____ signals that cause the supply chain to respond.

5. _____ JIT was the term used to describe the new concept of building larger products quickly within a defined _____time.

6. Such integration across the supply chain will help meeting demand in the market with a maximum of _____ , and minimum of _____.

III. Answer the following questions

1. What is the definition for logistics management?

2. Can you introduce ‘just-in-time’ production system briefly? What are the advantages of new JIT?

3. What do you think of the three new types of JIT used by Xerox?

4. How did inventory reduction in logistics lead to improved competitiveness at Xerox?

5. What are the important factors of information flow in the supply chain?

IV. Listen to the conversation, and answer the question or complete the sentences

1. Who have become the most powerful companies in the global economy, big multi-national manufacturers or global retailers?

2. What is the secret for the success of Wal-Mart?

3. What was Sam Walton’s formula?

4. Wal-Mart today is setting a new standard that other firms have to follow if they hope to compete. What is the new standard?

5. Wal-Mart was originally set up by_____ in_____(year) _____,Arkansas.

6. Wal-Mart is so powerful that it is referred as a _____.

V. Enquiry learning activity

Write a brief (200 words) appraisal of material and information flow in the supply network affecting one of the major products.

Part II The Relationship of Logistics Activities to Logistics Costs

Logistics costs are created by the activities that support the logistics process. Each of the major costs—customer service, transportation, warehousing, order processing and information, lot quantity and inventory carrying—is discussed below.

Customer Service Levels

The key cost associated with varying levels of customer service is the cost of lost sales. Monies that are spent to support customer service include the costs associated with order fulfillment, parts, and service support. They also include the costs of return goods handling, which has a major impact on a customer's view of the organization's service as well as the final level of customer satisfaction.

Cost of lost sale

The cost of lost sales includes not only the lost of the current sale, but also potential future sales from the customer and from other customers due to word-of-mouth negative publicity from former customers. A recent estimate indicated that every unsatisfied customer tells an average of nine others about his or her dissatisfaction with the product or service. It is no wonder that it is extremely difficult to measure the true cost of customer service!

The objective is to minimize total costs

Thus, the best approach is to determine desired levels of customer service based on customer needs. The idea is to minimize the total cost, given the customer service objectives. Because each of the other five major logistics cost elements work together to support customer service, good date are needed regarding expenditures in each category.

Transportation Costs

The activity of transporting goods causes transportation costs. Expenditures that support transportation can be viewed in many different

ways. Costs can be categorized by customer, product line, type of channel such as inbound versus outbound, and so on. Costs vary with volume of shipment (cube), weight of shipment, distance, and point of origin and destination. Costs and service also vary with the mode of transportation chosen.

Warehousing Costs

Warehousing costs are created by warehousing and storage activities, and by the plant and warehouse site selection process. Included are all of the sites that vary due to a change in the number or location of warehouses.

Order Processing/Information Systems Costs

This category includes costs related to activities such as order processing, distribution communications, and forecasting demand. Order processing and information costs are a very important investment to support good customer service levels and control costs. Order processing costs include such costs as order transmittal, order entry, processing the order, and related internal and external costs such as notifying carriers and customers of shipping information and product availability. Shippers and carriers have invested a great deal in improving their information systems, to include technology such as electronic data interchange (EDI), satellite data transmission, and bar coding and scanning shipments and sales.

Lot Quantity Costs

The major logistics lot quantity costs are due to procurement and production quantities. Lot quantity costs are purchasing - or production-related costs that vary with changes in order size or frequency. Lot quantity costs must not be viewed in isolation because they also may affect many other costs. For example, a customer goods manufacturer that produces large production runs may get good prices from suppliers and have long efficient production runs, but requires more storage space to handle large runs. Customer service levels may suffer as order fulfillment declines because products are produced infrequently, in large batches, and with inventory going to zero and creating stockout situations in between runs. This may increase information and order

processing costs, as customers frequently call to check on availability of back-ordered products, and cancel back orders.

Transportation costs also may rise as customers are sent partial or split shipments. Inventory carrying costs will rise as large quantities of inventory are held until used up, due to large batch sizes. The implication of one cost upon another must be carefully considered.

Inventory Carrying Costs

The relevant inventory costs are those that vary with the amount of inventory

The logistics activities that make up inventory carrying costs include inventory control, packaging, and salvage and scrap disposal. Inventory carrying costs are made up of many elements. The relevant inventory costs are those that vary with the amount of inventory stored including the four major categories as following:

1. **Capital cost**, which is the return that the company could make on the money that it has tied up in inventory.

2. **Inventory service cost**, which includes insurance and taxes on inventory.

3. **Storage space cost**, which includes those warehousing space-related costs which change with the level of inventory.

4. **Inventory risk cost**, including obsolescence, stealing, relocation within the inventory system, and damage.

New Words and Expressions

expenditure [iks'penditʃə, eks-] *n.*	支出，花费
category['kætigəri] *n.*	种类，类别
destination [ˌdesti'neiʃən] *n.*	目的地
inbound ['inbaund] *adj.*	入站，进货
outbound ['autbaund] *adj*	出站，出货
vary ['vɛəri] *v.*	变化，改变
communication [kəˌmju:ni'keiʃn] *n.*	信息，交流
forecast ['fɔ:kɑ:st] *n. v.*	预测
transmittal [trænz'mitəl] *n.*	传送，传输
order entry	订单输入
internal cost [in'tə:nl] *adj.*	内部成本
external cost [eks'tə:nl] *adj.*	外部成本
notify ['nəutifai] *v.*	通报，通知
availability [əˌveilə'biliti] *n.*	可用性，可获得性
satellite data transmission	人造卫星数据传输

lot quantity	批量
purchase [ˈpəːtʃəs] *v. n.*	购买，赢得；起重装置
frequency [ˈfriːkwənsɪ] *n.*	频率，周率
isolation [ˌaisəuˈleiʃən] *n.*	隔绝，孤立
order fulfillment	履行订单
decline [diˈklain] *v. n.*	下降，衰落；下降，衰退，斜面
back order	延期交货
stockout [ˈstɔkaut]*n.*	缺货
batch [bætʃ] *n.*	批次
inventory carry cost	存货储存成本
salvage [ˈsælvidʒ] *v.*	抢救
scrap [skræp] *v.*	敲碎

Notes

1．They also include the costs of return goods handling, which has a major impact on a customer's view of the organization's service as well as the final level of customer satisfaction.

它们（指用来支持客户服务的成本）还包括退货处理成本，这对客户对组织的印象及最终满意程度有重要影响。

2．The idea is to minimize the total cost, given the customer service objectives. Because each of the other five major logistics cost elements work together to support customer service, good date are needed regarding expenditures in each category.

其目标是在给定的客户服务水平下，实现总成本最小。由于其他五类主要的物流成本要素一起支撑着客户服务，因此需要知晓每类支出的信息。

3．Costs can be categorized by customer, product line, type of channel such as inbound versus outbound, and so on.

（运输）成本可以根据客户、生产线、渠道类型（如进货、出货）进行分类。

4．Order processing costs include such costs as order transmittal, order entry, processing the order, and related internal and external costs such as notifying carriers and customers of shipping information and product availability.

订单处理成本包括订单传送、订单输入、处理订单及相关的内外部成本（如告知承运人及客户有关运输信息和货物可获得性情况）。

5．…because products are produced infrequently, in large batches, and with inventory going to zero and creating stockout situations in between runs.

由于产品生产不连续、批量大，并且库存趋于零而导致（订货）周期之间产生缺货。

6．This may increase information and order processing costs, as customers frequently call to check on availability of back-ordered products, and cancel back orders.

如果客户经常要求查询延迟订购货物的可获得性或取消延迟订货，那么会进一步引起信息及订单处理成本的增加。

Exercises

I. Phrases translation

物流成本
销售损失
退货处理成本
潜在的销售
运输成本
进货渠道
出货渠道
订单处理成本
需求预测
销售沟通
电子数据交换系统
卫星数据传输
条码
内部成本
外部成本
订单传输
订单输入
批量成本
缺货
库存持有成本
资金成本
仓储空间成本
风险成本

II. Fill in the blanks and put the sentences into Chinese

1. Customer service cost are the monies spent to support customer service, include the costs associated with _____, parts and service support.

2. The cost of lost sales includes not only _____, but also potential future sales.

3. The objective of customer service management is to minimize_____, given the customer service level.

4. Transportation cost vary with _____, weight of shipment, _____, and point of origin and destination.

5. Order processing costs include such costs as _____, order entry, processing the order, and related internal and external costs.

6. Lot quantity costs are _____-related costs that vary with changes in order size or frequency.

III. Discuss with your partner and complete the following table on the main logistic costs and the factors that influence the costs

Main logistic costs	Important factors that influence the cost

续表

Main logistic costs	Important factors that influence the cost

IV. Challenging questions for discussion or writing training

1. Can you measure the true cost of customer service? Support your reply.
2. Explain the concept of the cost of customer service.
3. Give examples of order processing costs.
4. Explain the affect of lot quantity cost.
5. Explain the relevant inventory costs that vary with the amount of inventory.

Part III Supplementary Reading

Replenishment of Cruise Ships

The Replenishment of Cruise Ships is Daunting

One of the most daunting logistics jobs in the world is planning and implementing the replenishing of a cruise ship. Literally thousands of items, ranging from fresh bed linen to engine parts to perishable foodstuffs, must arrive at the vessel by a hard-and-fast deadline. “Every week brings a new crisis,” said Jim Walton, director of materials and logistics for Royal Caribbean Cruises Ltd in Miami. “Recently, 1,500 pounds of lamb didn’t make it to a vessel in time, so a chartered plane flew the lamb to the ship in Mexico.” “Cruise ships are moving targets. You only have a short window to get what’s critically needed to them. Otherwise, the captain doesn’t wait around.” he said.

Material Requirement of a Cruise Ship

As Cruises ship designers emphasized passenger amenities and cabin space over stowage space, the 90-day provisioning has been reduced to 14 days in all areas. This change transferred a huge responsibility to logistics to replenish ships in various out ports. On this basis, logistics have one opportunity to ensure all goods arrive within a six-to-eight hour window. The itinerary for each Royal Caribbean vessel is planed two years in advance. With that data in hand, Walton's logistics department publishes a container load schedule, which specifies vendor delivery dates, by commodity for each vessel, over a six-month period. For each ship there are delivery dates for chilled produce, frozen food, dry goods, bonded marine items, and gift shop and hotel items. The logistics department ships everything from blocks of ice to uniforms and tuxedoes; all manner of food stuffs; radar domes, navigation equipment, floral arrangement, spare parts for machinery in a vessel's engine room, even chemicals for each ship's photo–developing shop.

Distribution and Material Handling

Royal Caribbean owns 17 vessels—12 operated by Royal Caribbean International and five by Celebrity Cruises. Walton's 22-person staff handles logistics for all of the ship. "We work seven days a week, 24 hours a day. We load ships on weekends, working 10 to 12 hour days. We stagger our schedules so that some personnel are here all of the time, even on holidays. There are no days off for the logistics department." Walton's organization spends much of its time overseeing the physical handling of goods for the ships. A supplier may send a shipment covering eight different vessels. Walton's department segregates those goods by vessel and by service sector – beverage，hotel，gift shop, marine (meaning the functioning of the ship), entertainment, cruise programs, aquatics and hotel services. "We have to build specific pallets for each sector or department, and label them as such." he said. The reason is that goods are loaded on a cruise ship through different doors or hatches. When cargo arrives pier side, it must go aboard through the proper door. Royal Caribbean's cruise ships load at a rate of 40 pallets an hour, taking on a total of about 200 in five to six hours. At the same time, at least 2,000 passengers are boarding over other gangways.

Purchasing and Supplier Management

Royal Caribbean regularly uses a core group of about 400 vendors. The company buys through distributors, especially on the hotel and food and beverage side, but negotiates many of its contracts directly with manufactures. Distributors service the agreements, and maintain inventory stocks. “We try to keep as little inventory on hand as possible, and order on a just- in- time basis,” Walton said. “If a vendor fails us, then they are charting a plane at their expense. If they ship the wrong product, or something that wasn’t according to specification, they have to get the right product to the vessel at the next port of call. If that means arranging for an aircraft immediately, then they have to do it.”

New Words and Expressions

cruise ship [kruːz]	邮轮
daunting [dɔːnt] *adj.*	令人畏缩的
implement [ˈimplimənt] *v.*	实施，执行
replenish [riˈpleniʃ] *v.*	补给，补充
amenity [əˈmiːniti] *n.*	舒适，便利
cabin space	客舱
stowage space	货舱
provision [prəˈviʒən] *n.*	供给
outport [ˈautpɔːt] *n.*	大港外的独立小港
itinerary [aiˈtinərəri, iˈt-] *n.*	路线
vendor [ˈvendɔː] *n.*	卖主
chilled produce	冷冻产品
tuxedo [tʌkˈsiːdəu]*n.*	男士无尾半正式晚礼服
radar dome	天线屏蔽器，雷达天线屏蔽器，雷达无线罩
navigation equipment	导航设备
floral arrangement	插花艺术
segregate [ˈsegrigeit] *v.*	隔离
beverage [ˈbevəridʒ] *n.*	饮料
pallet [ˈpælit] *n.*	托（货）盘
hatch [hætʃ] *n.*	舱口，舱口盖
pier [piə] *n.*	码头
distributor [disˈtribjutə] *n.*	经销商

Notes

1．Cruise ships are moving targets. You only have a short window to get what's critically needed to them. Otherwise, the captain doesn't wait around.

邮船是一个活动目标，你只能通过一个窄小的窗口将他们最急需的东西送进去，否则，船长们是不会等候的。

2．As Cruises ship designers emphasized passenger amenities and cabin space over stowage space…

由于邮轮设计时，更强调乘客的舒适度，提高了客舱空间，而控制了货舱空间……

3．The reason is that goods are loaded on a cruise ship through different doors or hatches.

这是因为那些货物是通过不同的舱门或舱口而装入到邮轮上的。

4．At the same time, at least 2,000 passengers are boarding over other gangways.

与此同时，至少有 2 000 名乘客正通过其他舷梯上岸旅游。

5．Distributors service the agreements, and maintain inventory stocks.

经销商执行协议，并且保持库存存量。

Exercises

Questions for discussion or writing

1．Explain why replenishment of a cruise ship is considered to be a most daunting logistics job.

2．Give some specific requirement of materials.

3． What logistics activities is Royal Caribbean performing accrording to "the component parts of a logistics system" in Part I.

4．Explain the process of material handling abroad a cruise ship.

5．How does Royal Caribbean manage the suppliers and distributors.

6．Do you like the challenge of the logistic job of a cruise company? Defend your answer.

Chapter 2 Supply Chain Management

Chapter Outline

Part I Role of Supply Chain Management

- Development of the Concept
- Definition of Supply Chain Management
- Strategic Role of Supply Chain Management
- Internal Supply Chain Management

Part II Strategies for Supply Chain Management

- Five Supply Chain Strategies
- Many Suppliers
- Few Suppliers
- Vertical Integration
- Keiretsu Networks
- Virtual Companies

Part III Supplementary Reading: *Redesign Supply Chain in Volkswagen of America*

- The Former Distribution Supply Chain in Volkswagen of America
- Design Principle for the New Distribution System
- Innovation of Manufacturing Supply Chain Management

Part I Role of Supply Chain Management

Development of the Concept

SCM is an extension of logistics

The concept of supply chain management is relatively new. It is in fact the third phase of an evolution that started in the 1960s with the development of the physical distribution concept, which focused on the outbound side of a firm's logistics system. Logistics management is basically concerned with optimizing flows within the organization, while supply chain management extends such internal integration to the outside of the organization.

The initial focus on physical distribution or outbound logistics was logical since finished goods were usually higher in value, which meant that their inventory, warehousing, materials-handling, and packaging costs were relatively higher than their raw materials inputs. In U.S.A., a national organization, the National Council of Physical Distribution Management (NCPDM), was organized to foster leadership, education, research, and interest in the area of physical distribution management.

Supply chain management came into vogue during the 1990s and continues to be a focal point for making organizations more competitive in the global marketplace. Supply chain management can be viewed as a pipeline for the efficient and effective flow of products/materials, services, information, and financials from the supplier's suppliers through the various intermediate organizations/companies out to the customer's customers (see Fig. 2-1) or the system of connected networks between the original suppliers and the ultimate final consumer.

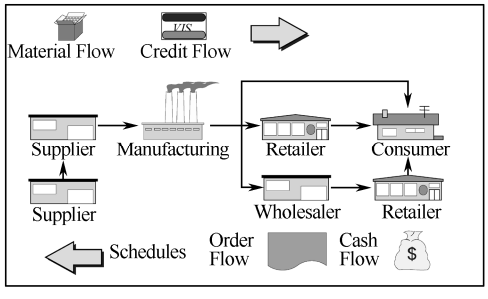


Fig. 2-1 An integrated supply chain

Definition of Supply Chain Management

Definition of SCM

Supply chain management (SCM) is viewed by some individuals to be

narrowly focused and/or focused upon supplies and materials, not demand for finished products.

Broadly and comprehensively, SCM is the art and science of integrating the flows of products and materials, information (as order and schedules), and financials (as credit and cash) through the entire supply pipeline from the supplier's supplier to the customer's customer. It could be argued that supply chain, demand chain, value network, value chains, etc., can be used as synonyms.

Practically, Supply chain management is the integration of the activities that procure materials and services, transform them into intermediate goods and final products, and deliver them to customers. These activities include purchasing and outsourcing activities, plus many other functions that are important to the relationship with suppliers and distributors.

Strategic Role of Supply Chain Management

Role of SCM

The concept of supply chain management provides a perspective to view the total system of interrelated companies for increased efficiency and effectiveness. The supply chain arrangement links a firm and its distributive and supplier network to end customers. The integrated value-creation process must be managed from material procurement to end-customer product delivery.

The integrated supply chain management shifts traditional channel arrangements from loosely linked groups of independent businesses that buy and sell inventory to each other toward a coordinated initiative to increase market impact, overall efficiency, continuous improvement, and competitiveness.

Competition between supply chains

Nowadays, a supply chain becomes the basic unit of competition. The leading companies have realized that the real competition is not company against company but rather supply chain.

SCM focus on the channel relationship management

Thus the focus of supply chain management is upon the management of relationships in order to achieve a more profitable outcome for all parties in the chain. This brings with it some difficulties since there may be occasions when the narrow self-interest of one party has to be included for the benefit of the chain as a whole.

The context of an integrated supply chain is the firms' relationship management within a framework as capacity limitations, information,

core competencies, capital, and human resource problems.

Internal Supply Chain Management

12 processs of the internal supply chain

Electro-Coatings Ltd electroplates parts for the automotive industry. Customers were becoming increasingly demanding, resulting in Electro-Coatings' undertaking a review of its internal supply chain. The initial analysis by walking the process identified 12 key processes, shown in Fig. 2-2.

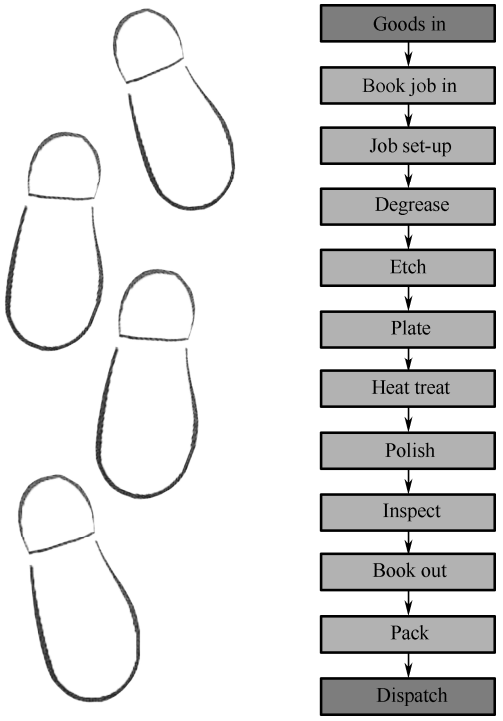


Fig. 2-2 Walk the process (12 steps)

Once this initial map has been produced, each step was mapped in detail, and some 60 steps were identified. These steps have been summarized as a flow diagram, showing every process step.

Analysis the value-adding time of process

An initial analysis of value-adding and non-value-adding time was undertaken, summarizing the total time, wasted time and value-adding time for each of the 12 steps. These data were then used to produce a map with the value-adding (activity) time and non-value-adding (wasted) time shown as the series of 12 steps against total elapsed time in hours.

The total process took approximately 70 hours. The project team held an afternoon meeting with those involved in the process, and the results of this brainstorming session produced a cause-and-effect diagram. This

was then used to identify opportunities for improving the process. For example, the analysis revealed that jobs arriving goods inwards at 9:00 am might not be input into the system until 5:00 pm because the operator would undertake the computer inputting at the end of the day. This resulted in manufacturing not having visibility of the updated order book until 9:00 am the following morning. This was easily addressed by combining the booking-in process with the good inwards process, removing a further lead time, depicts the re-engineering process.

The simple actions undertaken by the company resulted in the total process taking 37 hours. This led to a more responsive service being offered to its customers, and increased business.

New Words and Expressions

foster ['fɔstə] *v.*	培养，促进
vogue [vəug] *n.*	时尚，流行样式
intermediate [ˌintə(:)'mi:diət] *adj.*	中间的，中级的
procure [prə'kjuə] *v.*	取得，获得
prominent ['prɔminənt] *adj.*	突出的，显著的
capability [ˌkeipə'biliti] *n.*	能做某事的素质；能力
ubiquitous [ju:'bikwitəs] *adj.*	普遍存在的；无处不在的
agile ['ædʒail] *adj.*	灵活的，机敏的
nimbly ['nimbli] *adj.*	灵活的，敏捷的
premium ['primiəm] *n.*	保险费，奖金
offering ['ɔfəriŋ] *n.*	提供

Notes

1．SCM is the art and science of integrating the flows of products and materials, information (as order and schedules), and financials (as credit and cash) through the entire supply pipeline from the supplier's supplier to the customer's customer.

供应链管理是从供应商的供应商到客户的客户的整个供应管道中，对产品流、信息流（如订单和时间表）、资金流（如信用卡和现金）予以整合的艺术和科学。

2．The integrated supply chain management shifts traditional channel arrangements from loosely linked groups of independent businesses that buy and sell inventory to each other toward a coordinated initiative to increase market impact, overall efficiency, continuous improvement, and competitiveness.

集成的供应链管理将传统的渠道安排转变成协调的行动，来增加市场影响力，提高整体效率，持续改进以及提高竞争力；传统的渠道安排则是一群松散地联系着的买卖库存品的独立企业。

3．The context of an integrated supply chain is the firms' relationship management within a

framework as capacity limitations, information, core competencies, capital, and human resource problems.

集成供应链的内涵是公司的公共关系管理，包括能力限制、信息、核心竞争力、资金以及人力资源问题。

4．These data were then used to produce a map with the value-adding (activity) time and non-value-adding (wasted) time shown as the series of 12 steps against total elapsed time in hours.

用这些数据形成一张图，显示 12 个步骤系列所有耗用时间（小时）中的增值（活动）时间和非增值（浪费）时间。

Exercises

I．Phrases translation

供应链	人力资源
最终用户	上游供应商
供应链管理	供应链整合
货物流	下游企业
核心能力	物资供应
信息流	流程图
因果图	预定程序

II．Fill in the blanks and put the sentences into Chinese

1．Supply chain management is the system of connected networks between the_____ and the ultimate _____.

2．Supply chain management is the integration of the activities that _____materials and services, _____ them into intermediate goods and final products, and _____ them to customers.

3．_____will play an even more prominent role in enabling the firms' total supply chain capabilities.

4．Supply chain integration really begins with the goal of _____.

5．The project team held an afternoon meeting with those involved in the process, and the results of this _____ session produced a _____diagram.

III．Listen to the interview, and answer to the following questions

1．What is the push system?

2．What is the pull system?

3．What was set up by the manufacturers in Bentonville?

4．What should the manufacturers pay attention to when bargaining with Wal-Mart buyers?

5．Why is Wal-Mart said to have changed a 100-year history?

6．What can Wal-Mart achieve in the one-sided business practices?

IV. Challenging questions for discussion

1. What is the supply chain?

2. What definition will you give for supply chain management?

3. Discuss the difference between logistics and supply chain management.

4. Use the case of Electro-Coatings Ltd to discuss the benefit of internal supply chain management.

Part II Strategies for Supply Chain Management

Five Supply Chain Strategies

For those items to be purchased, companies must decide upon a supply-chain strategy. One such strategy is the traditional approach of negotiating with many suppliers and playing one supplier against another. A second strategy is to develop long-term, "partnering" relationships with a few suppliers. A third strategy is vertical integration, where firms may buy the supplier. A fourth strategy is keiretsu, in which suppliers become part of a company coalition. Finally, a fifth strategy is virtual companies. We will discuss each of these strategies.

Many Suppliers

With the many-supplier strategy, the supplier responds to the demands and specifications of a "request for quotation", with the order usually going to the low bidder. This strategy plays one supplier against another and places the burden of meeting the buyer's demands on the supplier. Suppliers aggressively compete with one another. Although many approaches to negotiations can be used with this strategy, long-term "partnering" relationships are not the goal. This approach holds the supplier responsible for maintaining the necessary technology, expertise, and forecasting abilities, as well as cost, quality, and delivery competencies.

Few Suppliers

A strategy of few suppliers implies that rather than looking for short-term attributes, such as low cost, a buyer is better off forming a long-term relationship with a few dedicated suppliers. Long-term suppliers are more likely to understand the broad objectives of the procuring firm and the end customer. Using few suppliers can create

value by allowing suppliers to have economies of scale that yields both lower transaction costs and lower production costs.

Advantages of few-suppliers strategy

Few suppliers, each with a large commitment to the buyer, may also be more willing to participate in JIT systems, as well as provide innovations and technological expertise. However, the most important factor may be the trust that comes with compatible organization cultures. A champion within one of the firms often promotes a positive relationship between purchase and supplier organizations by committing resources toward advancing the relationship, further strengthen the partnership.

DaimlerChrysler's few-suppliers strategy

Many firms have moved aggressively to incorporate suppliers into their supply system. DaimlerChrysler, for one, now seeks to choose suppliers even before parts are designed. Motorola also evaluates suppliers on rigorous criteria, but in many instances has eliminated traditional supplier bidding, placing added emphasis on quality and reliability.

Downsides of few-suppliers strategy

Like all strategies, a downside exists. With few suppliers, the cost of changing partners is huge, so both buyer and supplier run the risk of becoming captives of the other. Poor supplier performance is only one risk the purchaser faces. The purchaser must also be concerned about trade secrets and suppliers that make other alliances or venture out on their own.

Vertical Integration

Purchasing can take the form of vertical integration. By vertical integration, we mean developing the ability to produce goods or services previously purchased or actually buying a supplier or a distributor. As shown in Fig.2-3, vertical integration can take the form of forward ro backward integration.

Backward integration

Backward integration suggests a firm purchase its suppliers, as in the case of Ford Motor Company deciding to manufacture its own car radios.

Forward integration

Forward integration, on the other hand, suggests that a manufacturer of components make the finished product. An example is Texas Instruments, a manufacturer of integrated circuits that also makes calculators and computers containing integrated circuits.

Advantage of vertical integration

Vertical integration can offer a strategic opportunity for the operations manager. For firms with the necessary capital, managerial talent, and required demand, vertical integration may provide substantial opportunities for cost reduction. Other advantages in inventory reduction

and scheduling can accrue to the company that effectively manages vertical integration or close, mutually beneficial relationships with suppliers.

Many organizations find interest in vertical integration nowadays. Vertical integration can yield cost reduction, quality adherence, and timely delivery. Vertical integration appears to work best when the organization has large market share or the management talent to operate an acquired vendor successfully. However, backward integration may be particularly dangerous for firms in industries undergoing technological change if management cannot keep abreast of those changes or invest the financial resources necessary for the next wave of technology.

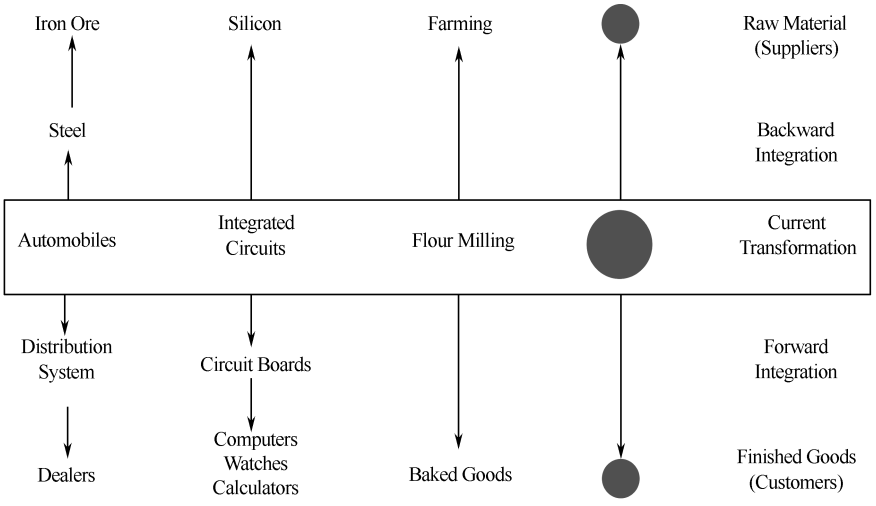


Fig. 2-3 Vertical Integration Can Be Forward or Backward

Keiretsu Networks

Keiretsu is Japanese term to describe suppliers who become part of a company coalition

Many large Japanese manufacturers have found a middle ground between purchasing from few suppliers and vertical integration. These manufacturers are often financial supporters of suppliers through ownership or loans. The supplier then becomes part of a company coalition known as a keiretsu. Members of the keiretsu are assured long-term relationships and are therefore expected to function as partners, providing technical expertise and stable quality production to the manufacturer. Members of the keiretsu can also have suppliers further down the chain, making second-and even third-tier suppliers part of the coalition.

Virtual Companies

Virtual companies rely on a variety of supplier relationships to provide services on demand

Virtual companies rely on a variety of supplier relationships to provide services on demand. Suppliers may provide a variety of services that include doing the payroll, hiring personnel, designing products, providing consulting services, manufacturing components, conducting test, or distributing products. The relationships may be short-term or long-term and may include true partners, or simply able suppliers. Whatever the formal relationship, the result can be exceptionally lean performance. The advantages of virtual companies include specialized management expertise, low capital investment, flexibility, and speed. The result is efficiency.

The apparel business provides a traditional example of virtual organizations. The designers of clothes seldom manufacture their designs; rather, they license the manufacture. The manufacturer may then rent rooms, lease sewing machines, and contract for labor. The result is an organization remains flexible, and can respond rapidly to the market.

New Words and Expressions

vertical ['vəːtikəl] *adj.*	垂直的，纵向的
integration [ˌinti'greiʃən] *n.*	集成，整合
backward ['bækwəd] *adj.*	后向的，倒向的
coalition [ˌkəuə'liʃən] *n.*	联盟，联合
virtual ['vəːtjuəl, -tʃuəl] *adj.*	虚拟的
quotation [kwəu'teiʃən] *n.*	报价，行情
bidder ['bidə] *n.*	投标者
aggressive [ə'gresiv] *adj.*	激进地
attribute [ə'tribju(ː)t] *n.*	特性，属性
economy of scale	规模经济
foster ['fɔstə] *v.*	培养
alignment [ə'lainmənt] *n.*	结盟
incorporate [in'kɔːpəreit] *v.*	把……合并
rigorous ['rigərəs] *adj.*	严密的，严格的
downside ['daunˌsaid] *n.*	缺陷
alliance [ə'laiəns] *n.*	联盟，同盟
forward ['fɔːwəd] *adv. adj.*	向前地；向前的，早的，迅速的
integrated circuit	集成电路
substantial [səb'stænʃəl] *adj.*	大量的，可观的
undergo [ˌʌndə'gəu]*v.*	经历，遭受

keep abreast of	与……并进，跟上，不落后
fluid [ˈflu(:)id] *adj.*	不固定的，易变的
payroll [ˈpeirəul] *n.*	工资单
lean [li:n] *adj.*	精益的，精细的
apparel [əˈpærəl] *n.*	服装

Notes

1．…and playing one supplier against another.　（竞争中）一家挤兑另一家。

2．With the many-supplier strategy, the supplier responds to the demands and specifications of a “request for quotation,” with the order usually going to the low bidder .

在多供应商战略中，各供应商对采购方的询价中的需求和规格做出回应，订单往往为报价较低者所获得。

3．Motorola also evaluates suppliers on rigorous criteria, but in many instances has eliminated traditional supplier bidding, placing added emphasis on quality and reliability.

摩托罗拉公司也用严格的标准来评价各供应商，但很多时候，出于质量和可信度考虑，它不采用传统的投标方法来选择供应商。

4．By vertical integration, we mean developing the ability to produce goods or services previously purchased or actually buying a supplier or a distributor.

纵向整合是指本企业发展生产那些之前需要从企业外部购买的产品和服务，或者直接收购供应商或分销商。

5．Other advantages in inventory reduction and scheduling can accrue to the company that effectively manages vertical integration or close, mutually beneficial relationships with suppliers.

能够有效地进行纵向整合并和供应商保持亲密、互利合作关系的企业也将获得在降低库存和订货方面的优势。

6．Vertical integration appears to work best when the organization has large market share or the management talent to operate an acquired vendor successfully.

如果企业占有很大的市场份额并能很好地操控供应商，在这种情况下纵向整合将会发挥其最大的效益。

7．Members of the keiretsu can also have suppliers further down the chain, making second-and even third-tier suppliers part of the coalition.

企业集团成员也可以联合供应链更下游的供应商，让第二、甚至第三层供应商成为联盟的一员。

Exercises

Ⅰ．Phrases translation

供应链战略	虚拟企业
多供应商战略	前向整合
少数供应商战略	后向整合

纵向整合战略　　规模经济
企业集团　　成本降低

II．Fill in the blanks and put the sentences into Chinese

1．With the many-supplier strategy, the supplier responds to the _____and _____of a "request for quotation," with the order usually going to the _____. This strategy plays one supplier against another and places the burden of meeting the buyers' demands on the _____.

2．Long-term suppliers are more likely to understand the _____of the procuring firm and end customer. Using few suppliers can create value by allowing suppliers to have _____ that yields both lower _____ and lower _____ .

3．With few suppliers, both buyer and supplier run the risk of becoming _____of the other. Poor supplier performance is only one risk the purchaser faces. The purchaser must also be concerned about _____and suppliers that make other alliances or venture out on their own.

4．Vertical integration can take the form of _____or _____integration.

III．Please complete the following table and discuss with your partner the advantages and disadvantages of five supply chain strategies

Supply chain strategy	*Advantages*	*Disadvantages*
Many suppliers		
Few suppliers		
Vertical integration		
Keiretsu networks		
Virtual companies		

IV. Challenging questions for discussion

1. Explain the main strategies for supply-chain management, and their objective?
2. Explain the basic approach of many-supplier strategy.
3. What is the advantage and downside of few-suppliers tactic?
4. Give examples of backward and forward vertical integration.
5. What do you know about Japanese company coalition?
6. Explain the virtual companies strategy with an example.

Part III Supplementary Reading

Redesign Supply Chain in Volkswagen of America

The Former Distribution Supply Chain in Volkswagen of America

VoA works with 750 dealer sites across USA

Volkswagen of America (VoA), a wholly owned subsidiary of Volkswagen AG , imports, markets and distributes Volkswagen and Audi vehicles in the United States. The vehicles are assembled in Mexico or Germany and distributed to a network of approximately 750 dealer sites across the United States. At the beginning of the 21st century, VoA management appointed a project team to review vehicle distribution process and develop new concepts or supply chain management.

Two assumptions for existing SCM: taking dealer as customer, & POS carrying significant inventory

The existing vehicle distribution system had served the organization over a number of years, and was developed around two implicit assumptions. The first is that the dealer (retail operator) is the "customer" of the VoA distribution process, not the end user. The logic was that Volkswagen of America distributes to the dealer and the dealer distributes to the end user. The second assumption was that, significant vehicle inventory (60—90 days of sales) carried by the dealer operator creates an incentive (financing cost avoidance) to increase the rate of sales. Thus the distribution system operated as a "push" system. Efficiency was the key performance criteria. These assumptions, in fact, reflect the dominant logic of vehicle distribution the U.S. auto industry.

Limitations of Push System: not satisfying customers with their first choice, higher system costs

The push system does have significant limitations. One is that not all customers are able to purchase their first choice configuration of vehicle color and optional equipment. Many manufacturers offer many more vehicle configurations than individual dealers are able to inventory (even carrying 60—90 days of sales). Dealers, who are interested in completing

sales transactions as quickly as possible generally offer customers the selection vehicles from their current inventory. If the current inventory does not contain the customer's first choice configuration, the dealer may offer a price discount as incentive for the customer to accept a non first choice vehicle. Although this process often does result in a consumer purchasing a vehicle, the transaction is inefficient. Both parties have compromised to a common date of an inventory shortfall. The end user has not received his choice of vehicle and the dealer has unnecessarily discounted the price.

A second limitation of the push system is the high system (importer +dealer) costs of transportation, financing and storage. Vehicles are inventoried at point of sale, the most expensive location in the entire distribution chain. In short, the push system is only coincidentally responsive to customer choices and it maintains large inventories at point of sale.

Design Principle for the New Distribution System

Design principle: more responsive to end user & more efficient

The project team at VoA was searching for a means to deal with the limitations of current push system. As a design principle for the new distribution system, the project team had rejected both of the above mentioned assumptions. The new system had to serve the end user's requirements as its key performance measure. The new system would have to be, first and foremost, responsive to end user choices and simultaneously more efficient than the current system. From these new principles the following performance criteria were established that the reengineered process would have to meet:

New criteria for performance

1. Maximize the percentage of customers who received their first choice of vehicles.

2. If a customer's first choice was not in a dealer's inventory, a first choice vehicle would be delivered to the dealer from VoA inventory within 48 hours.

3. Significantly reduce the total system (dealers and VoA) costs associated with transportation, financing and storage primarily through inventory reduction.

The project team developed a number of logistics concepts that alternatively managed where inventory might be aggregated and how it might be transported. However, they did not have an effective means of testing the concepts. The complexity and scope of the system made static

analysis of limited value. Simulation was identified as a potentially effective means of testing the concept and various scenarios of implementation.

Innovation of Manufacturing Supply Chain Management

Workers in a VW's plant consist of employees of its own and its suppliers

In its new Brazilian plant 100 miles northwest of Rio de Janeiro, Volkswagen is altering its supply chain. With this experimental truck factory, Volkswagen is sure that it has found a system that will reduce the number of defective parts, cut labor costs, and improve efficiency. Because VW's potential market is small, this is a relatively small plant, with scheduled production of only 100 trucks per day with only 1,000 workers. However, only 200 of the 1,000 work for Volkswagen. The VW employees are responsible for over quality, marketing, research, and design. The other 800, who work for suppliers such as Rockwell International, Cummins Engines, Delga Automotiva, Remon, and VDO, do the assembly work.

The objective of the new supply chain

Volkswagen's innovative supply chain will, it hopes, improve quality and drive down costs, as each subcontractor accepts responsibility for its units and worker compensation. With this strategy, Volkswagen subcontractors accept more of the direct costs and risks.

As the schematic shows, at the first stop in the assembly process, workers from Lochpe-Maxion mount the gas tank, transmission lines, and steering blocks. As the chassis moves down the line, employees from Rockwell mount axles and brakes. Then workers from Remon put on wheels and adjust tire pressure. The MWM/Cummins team installs the engine and transmission. Truck cabs, produced by the Brazilian firm Dlga Automotiva, are painted by Eisenmann and then finished and upholstered by VDO. Volkswagen employees do an evaluation of the final truck.

Outsourcing and supply chain integration

Because technology and economic efficiency demand specialization, many firms, like Volkswagen, are increasing their commitment to outsourcing and supply-chain integration. At this Volkswagen plant, however, VW is buying not only the materials but also labor and the related services. Suppliers are integrated tightly into VW's own network, right down to the assembly work in the plant.

Because purchase costs in the auto industry exceed 60% of the sales dollar, even modest reductions in these costs could make Volkswagen's payoff substantial. The results are not in yet, but VW is already trying a

similar approach in plants in Buenos Aires, Argentina, and with Skoda, in the Czech Republic. Volkswagen's new level of integration in supply-chain management may be the wave of the future.

Emphasis on procurement and supplier relationships

Most firms, like VW, spend more than 50% of their sales dollars on purchases. Because such a high percentage of an organization's costs are determined by purchasing, relationships with suppliers are becoming increasingly integrated and long-term. Joint efforts that improve innovation, speed design, and reduce costs are common. Such efforts, when part of an integrated strategy, can dramatically improve both partners' competitiveness. This changing focus places added emphasis on procurement and supplier relationships which must be managed. The discipline that manages these relationships is known as supply-chain management.

New Words and Expressions

subsidiary [səb'sidjəri] *n.*	附属事物，子公司
implicit [im'plisit] *adj.*	无疑问的，明确的
criteria [krai'tiəriə](criterion 的复数) *n.*	标准，准则
configuration [kən,figju'reiʃən] *n.*	构造，配置，形状
incentive [in'sentiv] *n.*	激励，刺激，动机
shortfall ['ʃɔ:tfɔ:l] *n.*	不足之量，差额
simultaneously [siməl'teiniəsli] *adv.*	同时地
aggregate ['ægrigeit] *v.*	（使）聚集
static ['stætik] *adj.*	不发展的，静止的
simulation [,simju'leiʃən] *n.*	模仿，模拟
chassis ['ʃæsi] *n.*	底盘，底架
upholster [ʌp'həulstə] *v.*	装潢，装饰
schematic [ski'mætik] *adj*	纲要的，概略的

Notes

1．Thus the distribution system operated as a "push" system. Efficiency was the key performance criteria.

因此，分销系统作为一个"推式"系统而运作。效益是关键绩效指标。

2．The new system would have to be, first and foremost, responsive to end user choices and simultaneously more efficient than the current system.

首先也是最重要的是，新的系统将必须对最终用户的选择做出反应，同时比现行系统更为有效。

3．Because purchase costs in the auto industry exceed 60% of the sales dollar, even modest

reductions in these costs could make Volkswagen's payoff substantial.

在汽车行业，由于采购成本超过销售金额的 60%，即使对这些费用进行很小的削减就可以使大众汽车获得可观的收益。

4．Volkswagen of America, (VoA) :美国大众公司（简称“VoA”）。

Exercises

I．Phrases translation

distribution process	distribution chain
existing system	design principle
the end user	user's requirements
vehicle configurations	supply-chain integration
inventory shortfall	supply-chain management

II．Challenging questions for discussion

1．What are the limitations of the push system?
2．What are the characteristics of the new system under design?
3．Why do Volkswagen subcontractors accept more of the direct costs and risk?
4．What are the advantages of the supply-chain integration?
5．Discuss the supply-chain management of VW.

Chapter 3 Logistics for Retail Management



Chapter Outline

Part I Retail Logistics Transformation
- The Influence of Retailers in Logistics
- Trends of Retail Logistics
- Flow Management in Retail Logistics and Its Changes
- Challenges for the Future

Part II Fashion Logistics
- Concept of Fashion
- Trends Making Fashion Logistics Complex
- Managing Fashion Logistics Pipeline
- Creating Lean Supply Chains

Part III Supplementary Reading: *Supply Chain Management of Grocery Retailer*
- Case Study of Tesco

Part I Retail Logistics Transformation

The Influence of Retailers in Logistics

Retailers are concerned with product availability

Retailing and distribution are concerned with product availability. Retailers must be concerned with the flows of product and information and through their companies to make products available to consumers. The concern is with the structure and management of logistics channels. A lot of effort has to go into retail logistics.

Retailer-led model

Retailers have extended their influence into logistics management. A lot of concepts are becoming increasing important, such as integrated distribution, just-in-time (JIT) distribution, electronic data interchange (EDI), quick response (QR) and efficient consumer response (ECR), reflecting the scope and power of the retailers and the drive to service and integration. Nowadays, the old inefficient, manufacturer-led and supplier-led practices have been swept away by the modern, technological rich, retailer-led and customer-focused ways of ensuring product availability.

Retailers became the channel captain and focus on the efficiency of the channel

The situation today is totally different, as retailers have dominated in structural, conduct and performance aspects.There are battles over a long period between the retailers and the suppliers/manufacturers, such as the fight over price and supply of cornflakes between Kelloggs *vs* Shoprite, perfume between Channel *vs* Superdrug, and price-fixing in the electrical retailing market through recommended retail prices. There are strong trend of retailer channel conquest, and retailers are the channel captains and set the pace in logistics. Having extended their channel control and focused on efficiency and effectiveness, retailers are now attempting to engender a more co-operative and collaborative stance in many channels. Their efforts to undertake distribution and logistics functions have dramatic influence on stock holding. Fig.3-1 shows the reducing of inventory in Tesco.

Trends of Retail Logistics

The transformation in retail logistics can be identified with the following six trends, all of which are ‘closely inter-related and in most cases, mutually reinforcing’:

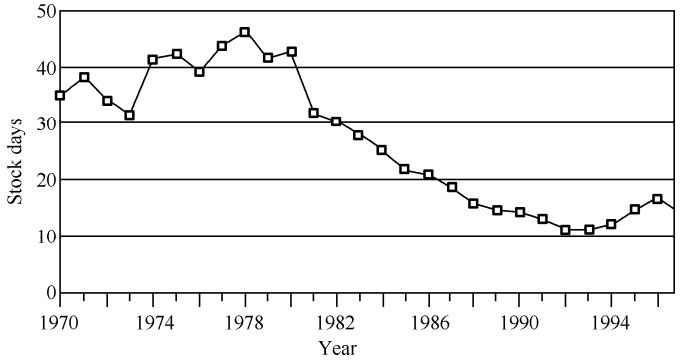


Fig. 3-1 Tesco inventory 1970—1997

Retailers control distributions

1. Retailers increasing their control over distributions (especially in warehouse to shop) by getting more and more supplies through distribution centers (DCs). In some sectors such as grocery this process is now virtually completed. British retailers have much tighter control over supply chain, through heavily depending on IT.

Resctructuring logistics systems

2. Restructuring of retailers' logistical systems to reduce inventory and generally improve their efficiency through the development of 'composite distribution' and centralization of slow moving stock.

Quick response

3. Adoption of 'Quick Response' (QR), again with the aim of cutting inventory levels. This involves reducing order lead-times and moving to a more frequent delivery of smaller consignments both internally (between DC and shop) and on external links with suppliers.

Retailers control upstream

4. Rationalization of upstream distribution (ie factory to warehouse). Retailers have been extending their control upstream, as a result of QR pressures and competition.

Adoption of SCM and ECR

5. Adoption of Supply Chain Management (SCM) and Efficient Consumer Response (ECR). SCM and ECR provide a management framework within which retailers and suppliers can more effectively co-ordinate their activities.

Increasing recycling flow

6. Increasing return flow of packaging material and handling equipment for recycling/re-use. Retailers are becoming much more involved in 'reverse logistics' operation. Germany is much advanced in this field in using re-usable container and new reverse logistics systems.

Flow Management in Retail Logistics and Its Changes

The channel of modern retailing now consists basically of three main actors-consumers, retailers and manufacturers. They are fundamental in driving change. The links between the channel members take a variety of

forms. In particular, the links involve flows of various kinds:

Three actors drive the changes of the four flows of products, risk, finance, and information

- Flows of products (physical supply);
- Flows of risk;
- Flows of finance (capital and payment);
- Flows of information (mandatory and elective).

Logistics management has great concern with the integration of these flows. These flows integration focuses on quick response (QR), just-in-time systems (JIT) and efficient consumer response (ECR). Nowadays, responsiveness to customer demand has become the key factor. Poor responsiveness in the logistics chain may be caused by holding products in a form and at points where it could not be responsive to changes in demand. Such lack of responsiveness is now simply too expensive and damaging. In essence, such systems seek to allow quick response to changing demand by holding semi-finished product and using information links to eliminate time in the system. Of necessity, such approaches involve the integration of manufacturing and distribution in order to gain the time savings. The emphasis on ECR attempt to ensure that suppliers are working with retailers and sharing data so as to avoid unnecessary costs and time delays and to deliver continuous delivery. Somerfield once held with 12 suppliers in a co-managed service, focused on the continuous replenishment of products, the introduction of new goods and the management of promotions. It set a 98.5 per cent service level target focusing on the consumer rather than Somerfield. By the end of the trial, stock levels had fallen by 25 percent without compromising customer service, service levels had increased, and many of the participants had adopted the co-managed inventory technique.

As the pressure for such relationships has increased, so the types of links and flows have changed. These changes have focused on four areas:

Crucial importance of customer/demand data

1．Technology. Technology introduction at the retail field has been taking place for many years. Retailers are able to capture much more data about customers and demand than before. This is important in itself, but the use of these data throughout the organization is crucial. Seven-Eleven Japan Co Ltd used technology to restructure understanding of consumers, capture demand, place orders, distribute products to stores several times daily, enhance the retail offer by service provision, electronically pay bills and re-structure risk. They further developed and transformed the Southland Corporation in the United States, and finally transformed the business.

International souring and operating

2. Internationalization. The internationalization or globalization is important to modern logistics. Retailers are increasingly operating on an international scale whether in terms of sourcing of products or operating of stores. The flows among companies are complicated by the internationalization, and require closer management.

Retailers are in alliance with distributors

3. Alliances. Internationalization and associative relationships promoted the retail alliances. Retailers adopt logistics alliances, as it also points to the rise of specialist distributors who can take on global distribution on behalf of manufacturers or retailers. Many of the leading retailers, especially the franchise operators of Benetton and Seven-Eleven Japan are at the forefront of the changes.

Retailers subcontract some acativities

4. Management. Future management for retail field will require very different methods of operating. For example, retailers or manufacturers need to consider if they want to carry out physical activities and information management by themselves. Other considerations include subcontracting a broad range of distribution tasks and associated operations.

Challenges for the Future

Looking ahead, we can see three areas on which retail logistic managers will have to focus in addition to current concerns:

1. Standardization. With standardization, we can have a better understanding of how a minute decision will affect distribution substantially;

2. Congestion. For many products transportation is a problem. Transportation congestion could possibly lead in the end to electronic shopping and home delivery.

3. Packaging and recycling. Growing environmental concern is forcing retailers to develop better and more efficient recycling and re-use systems.

New Words and Expressions

availability [əˌveilə'biləti] *n.*	可用性，有效性，实用性
concern [kən'sə:n] *v. n.*	涉及，关系到；担心
integrate ['intigreit] *v.*	使…完整，使…成整体
scope [skəup] *n.*	视野，范围
dominate ['dɔmineit] *v.*	控制，占优势，占主要地位
cornflake ['kɔ:nfleik] *n.*	玉米片

perfume [pəˈfjuːm] *n.* 香水，香味
engender [inˈdʒendə] *v.* 使产生，造成
consignment [kənˈsainmənt] *n.* 运送，委托，托付物
rationalization [ˌræʃənəlaiˈzeiʃən] *n.* 合理化
responsiveness [riˈspansivnis] *n.* 快速响应
eliminate [iˈlimineit] *v.* 消除，排除
replenishment [riˈpleniʃmənt] *n.* 补给
internationalization [ˈintəˌnæʃənəlaiˈzeiʃən] *n.* 国际化
alliance [əˈlaiəns] *n.* 联盟，联合，联姻
congestion [kənˈdʒestʃ(ə)n] *n.* 拥塞，拥挤

Notes

1．Nowadays, the old inefficient, manufacturer-led and supplier-led practices have been swept away by the modern, technological rich, retailer-led and customer-focused ways of ensuring product availability.

现今，原来低效的制造商和供应商主导的实践被一扫而光，取而代之的是现代的、富含技术的零售商引导的和以客户为中心的方法，以确保获得产品。

2．Increasing return flow of packaging material and handling equipment for recycling/re-use. Retailers are becoming much more involved in ‘reverse logistics’ operation.

包装材料和处理设备的退回流增加以便于循环/再使用。零售商更多地涉及“逆向物流”运作。

3．Of necessity, such approaches involve the integration of manufacturing and distribution in order to gain the time savings.

在必要时，这种方法还涉及制造和配送的整合，以节省时间。

4．Other considerations include subcontracting a broad range of distribution tasks and associated operations.

其他的考虑还包括将大量的配送任务和相关的运作分包出去。

5．With standardization, we can have a better understanding of how a minute decision will affect distribution substantially.

由于标准化，我们可以更好地理解一瞬间的决策会如何本质性地影响配送。

Exercises

Ⅰ．Phrases translation

零售物流　　综合配送
整合配送　　快速反应
产品流　　风险流
资金流　　信息流
有效客户响应

II. Fill in the blanks and put the sentences into Chinese

1. The efforts of retailers to undertake distribution and _____ _____have dramatic influence on_____ _____.

2. Retailers have been extending their_____ _____, as a result of QR pressures and competition.

3. The channel of modern retailing now consists basically of three main factors-_____ _____ and _____.

4. Technology is important in itself, but _____ _____ _____ _____ _____throughout the organization is crucial.

5. Retailers are increasingly operating on an international scale whether in terms of _____ _____ _____or operating of stores.

6. Growing environmental concern is forcing retailers to develop better and more efficient _____and _____systems.

III. Answer the following questions

1. Why are the retailers playing increasingly important role in logistics?

2. Why should ECR be attached great importance to?

3. What other three areas should be considered by the modern retailer logistic managers? Why?

4. Describe the inventory reduction of Tesco during 1970—1997, and discuss the reason for the reduction.

IV. Give examples for the changes in links and flows in retail logistics

Areas	**Important factors**	**Examples**
Technology	1.To capture much more data about customers and demand than before	
	2.The use of these data throughout the organization	
Internationalization	1.Operating on an international scale	
	2.Flows requiring closer management	
Alliances	1.Retailers adopt logistics alliances	
	2.the rise of specialist distributors	
Management	Different methods of operating	

Part II Fashion Logistics

Concept of Fashion

Definition and characteristics of fashion market

The Challenge to marketing and logistics is to find ways in which product development times can be reduced, feedback from the market-place made more rapid and replenishment times compressed. This pressure is more evident than in markets governed by fashion. Fashion is a broad term which typically refers to any product or market where there is an element of style which is likely to be short-lived. We have defined fashion markets as exhibiting the following characteristics:

1. Short life-cycles: the product is often designed to capture the mood of the moment. The saleable period is likely to be very short and seasonal, measured in months or even weeks.

2. High volatility: demand for these products is rarely stable or linear. It may be influenced by the weather changes, hit films, TV shows or even directly by advertising. Julia Roberts' appearance in the film Pretty Woman wearing a brown and white polka dress cleared the shops of similar dresses, and a Volkswagen advertisement featuring a newly divorced woman in a white top hat sent millinery sales soaring.

3. Low predictability: because of the volatility of demand it is extremely difficult to forecast with any accuracy even total demand during a period, let alone week-by-week or market-by-market requirements.

4. High impulse purchase: many buying decisions for these products are made at the point of purchase. In other words, the shopper when confronted with the product is stimulated to buy it, hence the critical role of 'availability' and, in particular, availability of sizes, colors, etc.

Trends Making Fashion Logistics Complex

Two trends for fashion market: off-shore sourcing, and reduction of suppliers number

The two trends have added complexity and difficulty to fashion logistics management. First is the growing tendency to source product and materials off-shore, causing longer lead-times. The pressure for seeking low-cost manufacturing came from the retailers. Between 1986 and 1991 one-sixth of all clothing factories in the European Union closed down as retailers switched their sourcing off-shore, increasing to the Far East. However, the longer replenishment lead time will cause severe suffering in either lose of sales or longer 'pipelines' with more inventory.

The second trend is the moves by many retailers in the apparel

business to reduce significantly the number of suppliers they do business with. It is particularly driven by the need to develop more responsive replenishment systems, which is not possible when sourcing is spread over hundreds, if not thousands, of suppliers.

Managing Fashion Logistics Pipeline

Traditional ways to cope with uncertainty is to improve the quality of the forecast. Yet, by definition, the volatility of demand and the short life cycles found in may fashion markets make it highly unlikely that forecasting methods can ever consistently and accurately predict sales at the item level. Instead, ways must be found of reducing the reliance upon the forecast and people must focus on lead-time reduction.

Three critical lead times

There are three critical lead times that must be managed by organizations that seek to compete successfully in fashion markets:

● Time-to-market: how long does it take the business to recognize a market opportunity and the translate this into a product or service and to bring it to the market? Companies that are slow to market can suffer in two ways. First, they miss a significant sales opportunity that probably will not be repeated. Second, the supplier is likely to find that when the product finally arrives in the market place, demand is starting to fall away, leading to the likelihood of mark-downs. Fig.3-2 illustrates the double risks facing those organizations that are slow to market.

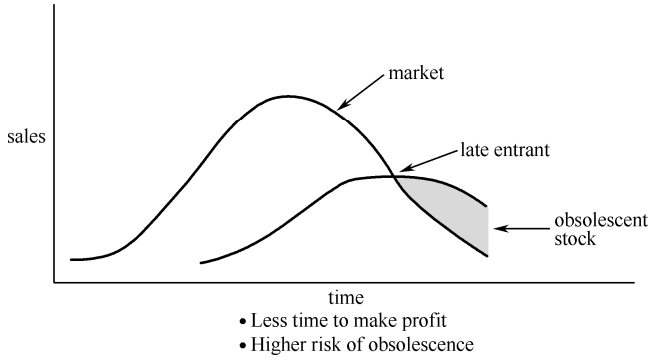


Fig.3-2 Shorter life cycles making timing crucial

● Time-to-serve: how long does it take to capture a customer's order and to deliver the product to the retail customer's satisfaction?

Traditionally in fashion industries orders from retailers have had to place on suppliers' books many months ahead of the season. Nine months was not unusual as a typical lead time. Clearly, the risk of both obsolescence and stock-outs is high, as well as the significant inventory

carrying cost that inevitably is incurred somewhere in the supply chain.

- Time-to-react: how long does it take to adjust the output of the business in response to volatile demand?

The challenge in a fashion market is to be able to see 'real' demand. Real demand is what consumers are buying or requesting hour by hour, day by day. Because most supply chains are driven by orders (ie batched demand), individual parities in the chain will have no real visibility of the final market place.

Creating Lean Supply Chains

Two strategies for leanness: reducing lead time, and capturing information sooner

Successful companies in fashion markets are able to capture the imagination of the consumer with their products but are often characterized by their agility. They are agile because they are 'lean'. How is this leanness achieved? Many organizations make significant improvements by adopting two strategies of reducing the logistics lead time and capturing information sooner on actual customer demand.

The Limited, a Columbus, Ohio-based apparel retailer, was one of the first in its industry to fully understand and use the economics of stock-turn and inventory management. Its flair for formula merchandising and skill in minimizing time-to-market changed the face of fashion retailing in the United States. Long ago, The Limited developed computer-controlled global supply chains honed to detect and use new fashion trends with speed and efficiency.

The Limited's teams of scouts continually comb the globe for hot new fashion ideas. Images of their finds are sent back to the Columbus Headquarter, where they are promptly copied. Computer-aided design techniques are applied to bring the cut, color and other details of the design into line with North American tastes. Moments later, small pilot orders are dispatched to EDI-linked suppliers in the low-cost manufacturing centers of Asia. Using Hong Kong as a consolidation center, the goods are air freighted direct to The Limited's distribution center in Columbus, in four times weekly shipments aboard a specially chartered 747 jumbo jet. The goods, ready labeled and price tagged for display, are sorted immediately, then, within two to three days, forwarded by road and air to retail sites all over the United States. The whole process takes around three to five weeks from order to in-store display and at the time it was introduced compared with the average nine months taken by its competitors.

New Words and Expressions

feedback ['fiːdbæk] *n.*	反馈，回复，成果，资料
replenishment [rɪ'pleniʃmənt] *n.*	补充，补给
capture ['kæptʃə] *v. n.*	俘获，夺得，捕获；战利品
volatility [ˌvələtiləti] *n.*	挥发性，易变，活泼
polka ['pɔlkə] *n.*	女用紧身短上衣
millinery ['milinəri] *n.*	女帽类，女帽制造业
predictability [priˌdiktə'biləti] *n.*	可预测性，可预言
impulse ['impʌls] *n.v.*	冲动，刺激，推动力；推动
stimulated ['stimjəˌletid] *adj.*	受激的
apparel [ə'pærəl] *n. v.*	衣服，服装；给……穿衣
obsolescence [ˌɔbsəu'lesəns] *n.*	退化，荒废
batched [bætʃt] *adj.*	成批（处理）的
agility [ə'dʒiləti] *n.*	敏捷，灵活
honed [həund]*adj. v.*	磨光的，亚光的；把……磨光
scout [skɑut]*n. v.*	童子军，侦察兵；侦察，搜索
chartered ['tʃɑːtəd] *adj.*	受特许的
jumbo ['dʒʌmbəu] *adj.n.*	巨大的；庞然大物

Notes

1．The Challenge to marketing and logistics is to find ways in which product development times can be reduced, feedback from the market-place made more rapid and replenishment times compressed.

营销和物流的挑战是找到可缩短产品开发时间、更快的市场反馈、压缩补给时间的方法。

2．…the volatility of demand and the short life cycles found in may fashion markets make it highly unlikely that forecasting methods can ever consistently and accurately predict sales at the item level.

……许多时尚业市场中的需求波动性和生命周期短（两个）特点，使得预测方法几乎不可能做到稳定准确地预测产品的销售。

Exercises

I．Phrases translation

1．consolidation center
2．computer-aided design　(CAD)
3．lean supply
4．real demand
5．lead time
6．服装业

7．冲动购买
8．店内展示
9．缺货物品

II．Fill in the blanks and put the sentences into Chinese

1．Fashion is a broad term which typically refers to any product or market where there is an element of _____which is likely to be _____.

2．There are three critical lead times that must be managed by organizations that seek to compete successfully in fashion markets:_____, _____ and _____.

3．_____ is what consumers are buying or requesting hour by hour, day by day.

4．Many organizations make significant improvements by adopting two strategies of reducing the _____and capturing _____ sooner on actual customer demand.

III．Answer the following questions

1．What are the characteristics of fashion market?

2．What are the two trends that add complexity and difficulty to fashion logistics management?

3．Why is “time-to-market” so important to the fashion companies?

4．How will you create lean supply chains?

Part III　Supplementary Reading

Supply Chain Management of Grocery Retailers

Case Study of Tesco

Tesco is the UK’s largest food retailer, with a sales turnover of more than €67.5 billion. While it has some 638 stores in central Europe, and some 636 in the Far East, most are in the United Kingdom and Northern Ireland, where it has nearly 1,800. This number has increased rapidly as Tesco entered the convenience store market with deals such as the Tesco Express alliance with Esso to run grocery shops at petrol stations. The product range held by the stores has grown rapidly in recent years, and currently stands at 65,000 stock-keeping units (skus) depending on the size of the store as Tesco broadens its presence in the ‘non-food’ market for electrical goods, stationery, clothing and the like. This massive range is supported by 3,000 suppliers, who are expected to provide service levels (correct time and quantities) of at least 98.5% by delivering to Tesco within half-hour time ‘windows’. Volumes are equally impressive. In a year, some 2.5 billion cases of product are shipped from suppliers to the stores.

Tesco states that its core purpose is ‘to create value for customers to earn their life-time

loyalty'. Wide product range and high on-shelf availability across that range are key enablers of that core purpose. So how do you maintain high availability of so many skus in so many stores?

An early reform for supermarket operation was to have suppliers deliver to a distribution centre rather than to every store. During the 1980s, distribution to retail stores was handled by 26 depots. These operated on a single-temperature basis, and were small and relatively inefficient. Delivery volumes to each store were also relatively low, and it was not economic to deliver to all stores each day. Goods that required temperature-controlled environments had to be carried on separate vehicles. Each product group had different ordering systems. The network of depots simply could not handle the growth in volume and the increasingly high standards of temperature control. A new distribution strategy was needed.

Under the 'composite' distribution system, many small depots with limited temperature control facilities were replaced by composite distribution centres (called regional distribution centre, RDCs), which can handle many products at several temperature ranges. The opportunity Tesco provide a cost-effective daily delivery service to all stores. Typically, a composite distribution centre can handle over 60 million cases per year on a 15-acre site. The warehouse building comprises 25,000 square metres divided into three temperature zones: frozen (-25℃)，+2℃(chilled) and +12℃ (semi-ambient). Each distribution centre (DC) serves a group of between 100 and 140 retail stores. Delivery vehicles from composite depots can use insulated trailers divided into chambers by mean of movable bulkheads so they can operate at different temperatures. Deliveries are made at agreed, scheduled times. Ambient goods such as cans and clothing are delivered through a separate grocery distribution network which relies on a stocked environment where orders are picked by store. This complemented by a strategically located trucking station which operates a pick to zero operation for fast-moving grocery on merchandise units that can be placed directly on the shop floor.

So much for the method of transporting goods from supplier through to the stores, but how much should be sent to each store? With such a huge product range today, it is impossible for the individual store to reorder across the whole range (store-based ordering). Instead, sales of each product line are tracked continuously through the till by means of electronic point of sale (EPOS) systems. As a customer's purchases are scanned through the bar code reader at the till, the sale is automatically recorded for each (Stock Keeping Unit). Cumulative sales are updated every four hours on Tesco Information Exchange (TIE). This is a system based on Internet Protocol that allows Tesco and its suppliers to communicate trading information. The aim of improved communication is to reduce response times from manufacturer to stores and to ensure product availability on the shelf. Among other things, TIE aims to improve processes for introducing new products and promotions, and to monitor service levels.

Based on the cumulative sales, Tesco places orders with its suppliers by means of electronic data interchange (EDI). As volumes and product ranges increasing during the 1990s, food retailers such as Tesco aimed to destock their distribution centres by ordering only what was needed to meet tomorrow's forecast sales. For fast-moving products such as types of cheese and washing

powders, the aim is day 1 for day 2: that is, to order today what is needed for tomorrow. For fast-moving products, the aim is to pick to zero in the distribution centre: no stock is left after store orders have been fulfilled and deliveries to stores are made as soon as the product is picked, which increases the stock availability for the customer. The flow of the product into the distribution centre is broken into four waves and specific products are delivered in different cycles through the day. This means that the same space in the distribution centre can be used several times over.

New Words and Expressions

insulated ['ɪnsjʊleɪt] *v.*	使隔离，使孤立，使绝缘，使隔热
chamber ['tʃeɪmbə] *n.*	室，卧室，会客室，内庭
stationery ['steɪʃənri] *n.*	文具，办公用品，信纸，信封，文房四宝
cost-effective	成本高效的，经济的
chill [tʃɪl] *v.*	（使）变冷，使冰冷
ambient ['æmbiənt] *adj.*	周围的，环境的
bulkhead ['bʌlkhed] *n.*	隔离壁，隔板
cumulative ['kju:mjələtɪv] *adj.*	累积的，渐增的

Notes

1．This massive range is supported by 3,000 suppliers, who are expected to provide service levels (correct time and quantities) of at least 98.5% by delivering to Tesco within half-hour time 'windows'.

这么大范围的商品由 3 000 家供应商供给，要求他们提供的服务程度（时间和数量的正确率）至少是 98.5%，在半小时的“时间窗”里向 Tesco 发货。

2．Tesco states that its core purpose is 'to create value for customers to earn their life-time loyalty'.

Tesco 声明其核心目标是“为客户创造价值，以赢得他们终生的忠诚”。

3．Each product group had different ordering systems. The network of depots simply could not handle the growth in volume and the increasingly high standards of temperature control.

每项产品都有不同的订单系统。配送点网络简直无法对付数量的增长和温控标准的提高。

Exercises

I．Fill in the blank and put the sentence into Chinese

1．The warehouse building comprises 25,000 square metres divided into three temperature zones:_____, _____, and _____.

2．Delivery vehicles from composite depots can use _____ divided into chambers by mean of _____ so they can operate at different temperatures.

3．As a customer's purchases are scanned through_____ at the till, the sale is

automatically recorded for_____.

4. The flow of the product into the distribution centre is broken into four waves and specific products are delivered in different cycles through the day.

II. Phrases translation

stock-keeping units	sales turnover
regional distribution center (RDC)	store-based ordering
electronic point of sales (EPOS) systems	cumulative sales
internet protocol	fast-moving product

III. Questions for discussion or writing

1. Describe the key logistics processes at Tesco.
2. How shall we manage fast-moving products?
3. How do you understand Tesco's core purpose of 'creating value for customers to earn their life-time loyalty'?
4. What do you think are the main logistics challenges in running the Tesco operation?

Chapter 4 Freight Transport



Chapter Outline

Part I Shipping Transportation
- Elements of Shipping Service
- Ports
- Cargoes
- Route
- Types of Shipping Service

Part II Bulk and Container Transport
- Bulk Transport
- Container Transport
- Intermodal Transport

Part III Supplementary Reading：*The Environmental Impact of Transport*
- Transportation Activities Affecting the Environment
- The Environmental Impact Factors of Transport

Part I Shipping Transportation

Elements of Shipping Service

Types of Ships:
Tanker
Bulk carrier
General cargo vessels

Ships come in a variety of types. Tankers are designed to carry liquids in bulk. The larger ones carry crude oil while the smaller ones usually carry oil products, chemicals, and other liquids. Bulk carriers carry dry bulk commodities such as iron ore, coal, grain, bauxite, phosphate, and other minerals. Some of the bulk carriers are self-discharging. They carry their own unloading equipment, and are not dependent on port equipment for unloading. Liquefied gas carriers carry refrigerated gas under high pressure. Container ships carry standardized metal containers in which packaged goods are stowed. General cargo vessels carry in their holds and above deck all types of goods, usually packaged ones. These vessels often have multiple decks or floors. Since handling general cargo is labor intensive and time consuming, general cargo has been containerized during the last four decades, thus reducing the time the ships spend in ports from days to hours. Refrigerated vessels or reefers are designed to carry cargo that requires refrigeration or temperature control, like fish, meat, and fruit, but can also carry general cargo. Roll-on–Roll-off (Ro–Ro) vessels have ramps for trucks and cars to drive on and off the vessel. Other types of vessels are ferries, passenger ships, fishing vessels, service/supply vessels, barges, research ships, dredgers, naval vessels, and other special purpose vessels. Some ships are designed as combination of the above types, e.g., ore-bulk-oil, general cargo with refrigerated compartments, passenger and Ro–Ro.

Ports

Ports' influence on ships

Ports are used for loading and unloading cargo as well as for loading fuel, fresh water, and supplies, and discharging waste. Ports impose physical limitations on the dimensions of the ships that may call in them (ship draft, length and width), and usually charge fees for their services. Sometimes ports are used for transshipment of cargo among ships. Major container lines often operate large vessels between hub ports, and use smaller vessels to feed containers to/from spoke ports.

Cargoes

Cargo variety and packaging

Ships carry a large variety of goods, including manufactured consumer goods, unprocessed fruits and vegetables, processed food, livestock, intermediate goods, industrial equipment, processed materials, and raw materials. These goods may come in a variety of packaging, such as: boxes, bags, drums, bales, and rolls, or may be unpackaged, or even in bulk. Sometimes cargoes are unitized into larger standardized units, such as: pallets, containers, or trailers. Generally, in order to facilitate more efficient cargo handling, goods that are shipped in larger quantities are shipped in larger handling units or in bulk. During the last several decades packaged goods that required multiple manual handlings, and were traditionally shipped by liners, have been containerized into standard containers. Containerization of such goods facilitates efficient mechanized handling of the cargo, and thus saves time and money, and also reduces pilferage. Shipping containers come in two lengths, 20 feet and 40 feet. A 20’ container carries up to approximately 28 tons of cargo with a volume of up to 1000 cubic feet. Most containers are metal boxes with an 8×8 cross-section, but other varieties exist, such as: refrigerated containers, open top, open side, and half height. In addition there are containers of nonstandard sizes. Large containerships can carry thousands of 20 feet Equivalent Units (TEUs), where a 40’ container is counted as two TEUs.

Route

Classification of shipping Routes

Shipping routes may be classified according to their geographical characteristics (and the corresponding type and size of vessel used): deep-sea, short-sea, coastal, and inland waterways. Due to economies of scale in shipping larger size vessels are employed in deep-sea trades between continents whereas smaller size vessels usually operate in short-sea and coastal routes, where voyages are relatively short. As mentioned above, smaller containerships are used on short-sea routes that feed cargo to larger vessels that operate on long deep-sea routes. A similar thing can sometimes happen with tankers where large crude carriers used for long routes are partially unloaded at an off shore terminal to smaller vessels (often barges). Due to draft restrictions inland waterways are used mainly by barges. Barges are used to move cargoes between the hinterland and coastal areas, often for transshipments to/from ocean-going vessels, or to move cargoes between inland ports.

Types of Shipping Service

Three modes of ship operation: liner, tramp and industrial operation

There are three basic modes of operation of commercial ships: liner, tramp, and industrial operations. Liners operate according to a published route and schedule similar to a bus line, and the demand for their services depends among other things on their schedules. Liner operators usually control container and general cargo vessels. Tramp ships follow the available cargoes, similar to a taxicab. Often tramp ships engage in contracts of affreightment. These are contracts where specified quantities of cargo have to be carried between specified ports within a specific time frame for an agreed upon payment per unit of cargo. Tramp operators usually control tankers and dry bulk carriers. Both liner and tramp operators try to maximize their profits per time unit. Industrial operators usually own the cargoes shipped and control the vessels used to ship them. These vessels may be their own or on a time charter. Industrial operators strive to minimize the cost of shipping their cargoes, especially those with high volume of liquid and dry bulk trades as oil, chemicals, and ores. When facing insufficient fleet capacity, the operator may want to charter in additional vessels. In cases of excess fleet capacity, vessels may be chartered out (to other operators), laid-up or even scrapped. However, when liners reduce their fleet size they must rearrange their routes and/or schedules, which may result in reduced service frequency or withdrawal from certain markets. In both cases revenues may drop.

Industrial operators, who are usually size their fleet below their long-term needs, and complement it by short-term (time or voyage/spot) charters from the tramp companies. Seasonal variations in demand, and uncertainties of future demand, freight rates, and cost of vessels (both newbuildings and second-hand) affect the fleet size decision. However, when the trade is highly specialized (e.g., liquefied gas carriers) no tramp market exists and the industrial operator must assure sufficient shipping capacity through long-term commitments. The ease of entry into the maritime industry is manifested in the tramp market that is highly entrepreneurial. This results in long periods of oversupply of shipping capacity and the depressed freight rates and vessel prices. However, certain market, such as container lines, pose large economies of scale and are hard to enter.

New Words and Expressions

in bulk	大批，散装

bulk carrier	散货船
bauxite ['bɔ:ksait] *n.*	铝矾土
phosphate ['fasfeit] *n.*	磷酸盐
hold [həuld] *n.*	货舱
general cargo	件杂货
Roll-on–Roll-off (Ro–Ro)vessel	滚装船
ramp [ræmp] *n.*	跳板
propel[prə'pel] *v.*	推动
dredger['dredʒə(r)] *n.*	挖泥船
compartments [kəm'pa:tmənt] *n.*	隔舱
transshipment ['trænsʃipmənt] *n.*	转船
hub port	核心港口
livestock ['laivstak] *n.*	家畜
pallet['pælət] *n.*	托盘
cross-section	横断面
deep-sea	远洋
draft [dra:ft] *n.*	吃水
hinterland ['hintəlænd] *n.*	内陆地区
barge [ba:dʒ] *n.*	驳船
ocean-going	远洋
liner['lainə(r)] *n.*	班轮
tramp [træmp] *n.*	不定期船
contracts of affreightment	包运合同
laid-up	搁置、闲置
scrap [skræp] *v.*	拆解

Notes

1. Ports impose physical limitations on the dimensions of the ships that may call in them (ship draft, length and width), and usually charge fees for their services.

港口自身条件约束限制了停靠港口的船舶尺寸（船舶吃水、船长、船宽），同时对其提供的服务索取费用。

2．Sometimes ports are used for transshipment of cargo among ships. Major container lines often operate large vessels between hub ports, and use smaller vessels to feed containers to/from spoke ports.

有时港口作为货物转船场所，主要的集装箱班轮航线经常在核心港之间投入大型船舶，而在支线航线投入较小的船舶。

3．Due to economies of scale in shipping larger size vessels are employed in deep-sea trades between continents whereas smaller size vessels usually operate in short-sea and coastal routes,

where voyages are relatively short.

在运输中，在规模经济的作用下，大船适用于跨洋的远洋贸易，而小船通常在航程相对短的近洋及沿海航线上运输。

4．These are contracts where specified quantities of cargo have to be carried between specified ports within a specific time frame for an agreed upon payment per unit of cargo.

包运合同是指定数量的运输货物在指定的港口间、指定的时间段，按每单位协议运价支付运费的一种合同。

5．Industrial operators strive to minimize the cost of shipping their cargoes, especially those with high volume of liquid and dry bulk trades as oil, chemicals, and ore.

货主船东追求运输成本的最小化，尤其是从事大量液散货、干散货贸易的，如石油、化学品、矿石等。

6．In cases of excess fleet capacity, vessels may be chartered out (to other operators), laid-up or even scrapped.

如果船队运力过剩，经营人可能出租、闲置甚至拆解船舶。

7．The ease of entry into the maritime industry is manifested in the tramp market that is highly entrepreneurial. This results in long periods of oversupply of shipping capacity and the depressed freight rates and vessel prices.

海运市场进入的方便性使得不定期船市场呈现高度企业化，其长期结果是导致船舶运力过剩，以及运价和船价低迷。

Exercises

I．Phrases translation

班轮
不定期船
支线港
散装
沿海航线
远洋船
期租
运力过剩
件杂货
核心港
滚装船
远洋航线
腹地
包运合同
闲置

II．Answer the following questions

1．When the ships call in the port, what are limitations of port on the ships?
2．Why are the larger ships put in the long distant route?
3．When the shipping market is down, what should the ship’s owner do?
4．How do you think the relationship of four shipping factors of ship, cargo, route and port?
5．Can you describe the three types of shipping service.

Part II Bulk and Container Transport

Bulk Transport

Cargoes suitable for bulk transport

There are four characteristics of bulk commodities which affect their suitability for transport in bulk:

- Volume. There needs to be enough volume to fill a ship.
- Handling and stowage. Cargoes which can easily be handled with automated equipment as grabs and conveyers are more suitable for bulk transport.
- Cargo value. High-value cargoes are more sensitive to inventory costs, which makes them advantageous to ship in smaller parcels, whereas low-value commodities like iron ore can be stockpiled.
- Regularity of trade flow. Cargoes shipped regularly in large quantities provide a better basis for investment in bulk handling systems.

Bulk transport system

Fig. 4-1 shows the stages in a typical bulk transport system, consisting of a sea voyage and two land journeys usually by lorry, train, conveyor, or pipeline. There are four storage areas located at the origin (e.g. mine, oilfield, factory or steel mill), the loading port, the discharging port and the destination, and no less than 17 handling operations as the cargo moves through the system! These are listed in the diagram and include a ship loading and discharge; four handling operations on and off land vehicles, and eight movements to and from storage.

Principles of bulk transport

Whether transport is between a coalmine and a power station or between a chemical plant and a fertilizer wholesaler, the aim is to move the cargo as cheaply and efficiently as possible. Each commodity and industry has specific transport requirements and no single system is ideal for every situation. But there are certain principles for the bulk transport systems.

- use the biggest ship possible
- minimize cargo handling
- integrate transport modes
- keep stocks as low as possible

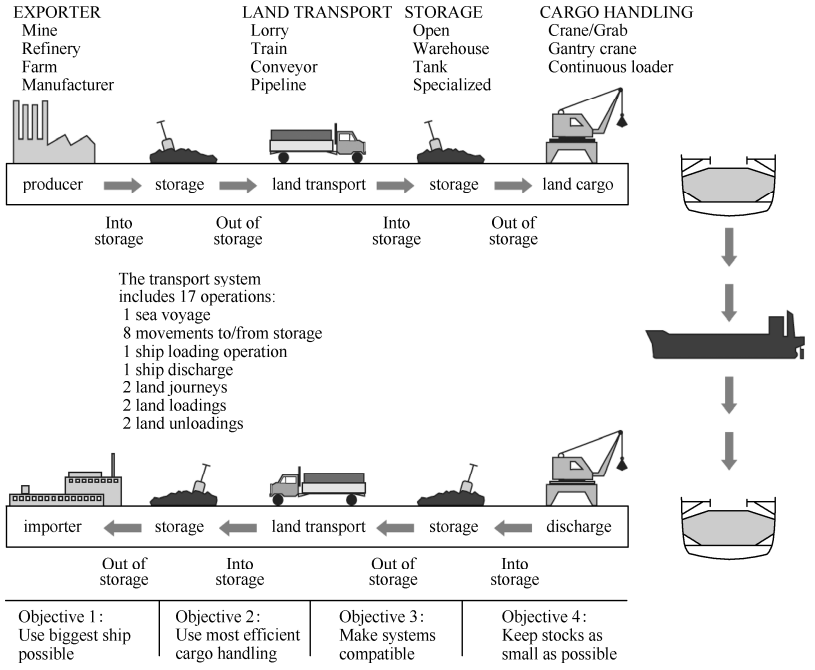


Fig. 4-1 Bulk transport system

Container Transport

Advantages & drawbacks of containerization

Containerized liner services provide fast,frequent and reliable transport for almost any cargo to almost any foreign destination at a predictable charge. While conveying numerous advantages, containerization also face a lot of challenges from its draw backs (Fig. 4-2).

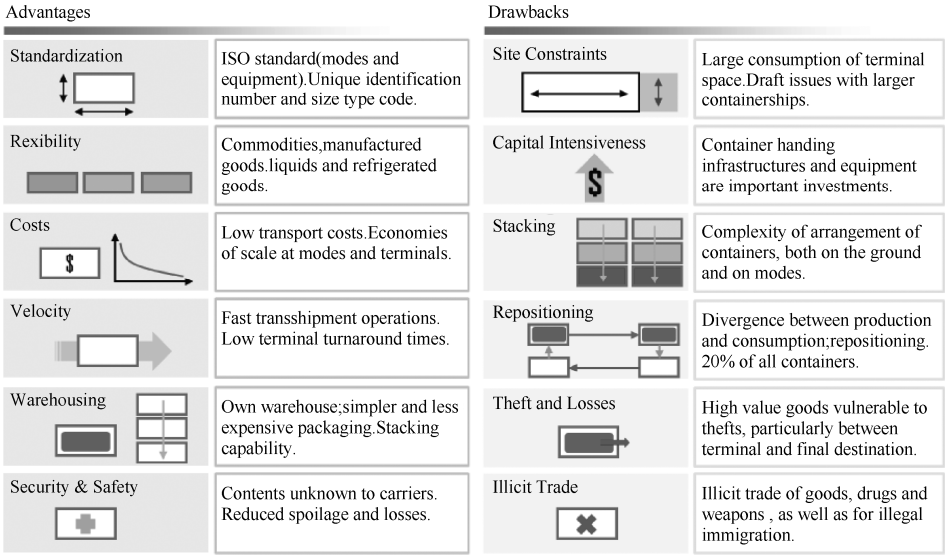


Fig. 4-2 Advantages and drawbacks of containerization

The container system

The container system consists of three components. First, the product transported was packed in standard units that could be handled through the whole transport process. Second, an integrated transport system shall be built with vehicles at each transport stage to handle the standardized units. On sea, the investment is in purpose-built cellular container ships. On land, it requires road and rail vehicles capable of carrying containers efficiently. Finally, the third part is to high-speed cargo-handling facilities to transfer containers from one vehicle to another. Container terminals, inland distribution depots and facilities for ‘stuffing’ loads into containers all played a part in this process.

Packing organization of container

FLC:Full Container Load – this is when the full container is used by a single customer for his cargo. FCL containers are usually packed and unpacked by the client at the origin and destination. The client takes responsibility, liablity for the packing and condition of the cargo packed in the FCL container. The carrier is not responsible for the damage or short of the goods in the container.

LCL : Less than Container Load – this is when the same container is used for cargoes of multiple shippers and consignees. The clients deliver the cargo to the lines’ CFS（Container Freight Station）and the lines pack the cargo on behalf of the client. In this case, the shipping line takes responsibility and liability for the packing, condition and delivering of the cargo.

CY & CFS

CY（Container Yard）is the place where container carriers store containers and chassis, accept or deliver loaded containers and lease empty containers or receive returned ones. CFS is designated for shipping companies to accept and store small-lot cargoes, assorts and consolidates cargo into containers by destination, and also devans small-lot consolidated cargo out of the containers for sorting and delivery to consignees. When receiving or delivering cargo at a CFS, the shipping company imposes a CFS charge to cover costs of cargo handling at the CFS.

Intermodal Transport

Intermodal transport involves the transfer of cargo between vehicles of different modes. This includes both containers and trailers. Trailers and single-unit trucks are using intermodalism to deal with increased highway congestion and gonverment regulations that restrict these vehicles on certain roads. Intermodal movements allow shipper to take

advantage of the cost/service benefits each mode offers, with ideas of increasing efficiency of the transportation and reducing costs while getting competitive service.

The most important feature of intermodalism is the provision of service with one bill of lading. This has caused a revolution in organization and information management. At the heart of modern intermodalism are data handling, processing and distribution systems that are essential to ensure the safe, reliable and cost effective control of freight movements with several modes. Electronic Data Interchange (EDI) is an important technology helping companies and government agencies (customs documentation) cope with an increasingly complex global transport system.

Intermodal transport is popular for the medium and long-haul freight flows across the globe, especially for door to door services, as integration of maritime and rail transport in North America. In Europe rail intermodal services are becoming well-established between the major ports, such as Rotterdam, and southern Germany, and between Hamburg and Eastern Europe.

New Words and Expressions

grab [ɡræb] *n.*	抓斗
conveyer [kən'veiə] *n.*	输送机
stockpiled['stɑkpail] *v.*	大量储备
regularity [ˌregju'lærəti] *n.*	规则性，规律性
wholesaler['həulseilə(r)] *n.*	批发商
turnaround time	周转时间
divergence[dai'vɜːdʒəns] *n.*	分叉，分歧，背离
reposition['riːpə'ziʃən] *v.*	调配
illicit[i'lisit] *adj.*	法律不许可的，非法的，不正当的
purpose-built ['pəːpəsbilt] *adj.*	为特定目的建造的；专门建造的
condition of the cargo	货物状态
small-lot	小批量
chassis ['ʃæsi] *n.*	集装箱挂车
consolidated cargo	拼箱货
intermodal transport	多式联运

Notes

1．These are listed in the diagram and include a ship loading and discharge; four handling operations on and off land vehicles, and eight movements to and from storage.

图表显示了船舶的一次装卸，陆路运输工具的4次装卸，仓库的8次进出。

2．An integrated transport system shall be built with vehicles at each transport stage to handle the standardized units. On sea, the investment is in purpose-built cellular container ships. On land, it requires road and rail vehicles capable of carrying containers efficiently.

一体化运输系统需要在每个运输过程中配套能处理标准化集装箱的运输工具。在海上，需投入专用途的全集装箱船舶，在路上，需有能装运集装箱的公路及铁路运输工具。

3．Container terminals, inland distribution depots and facilities for ‘stuffing’ loads into containers all played a part in this process.

集装箱码头、内陆分拨点、拼箱点参与这过程。

4．Trailers and single-unit trucks are using intermodalism to deal with increased highway congestion and government regulations that restrict these vehicles on certain roads.

从事多式联运的挂车和卡车要面对高速公路的日益拥堵，以及某些路段上行政法规的限制。

5．Intermodal movements allow shipper to take advantage of the cost/service benefits each mode offers, with ideas of increasing efficiency of the transportation and reducing costs while getting competitive service.

多式联运在提供有竞争力的服务的同时，以运输过程效率的提高及成本的减少作为目标，让托运人享受每种运输方式带来的成本/服务上的好处。

Exercises

I．Answer the following questions

1．How are the storages happened in the bulk transport system, can you reduce the frequency of the handling operation?

2．Which kinds of cargoes are suitable for the bulk transport, and give some examples?

3．What do you think of the advantages and disadvantages of the container transport?

4．Can you explain the abbreviation for FCL(LCL)?

5．Can you define the intermodal transport?

II．Case analysis

Importer A imported one container of cargoes. He picked up the container from container yard, after checking the condition of the container at the discharging port. The container was carried by the truck to a warehouse of A company. When the container was open, they found the cargoes were partly damaged.

Who should be responsible for the damage cargo, and why? (Freight items in the sale of contract and bill of lading are as follows: CY-CY, FCL-FCL, shipper’s load and count)

Part III Supplementary Reading

The Environmental Impact of Transport

Environmental pressures are driving the world-wide freight industry to take a close look at how it conducts its business. There is increasing concern about the harmful effects on the environment of a growing freight industry.

Transportation Activities Affecting the Environment

Transportation activities involve separate modes supporting the movements of passengers and freight(as Fig. 4-3 shows):

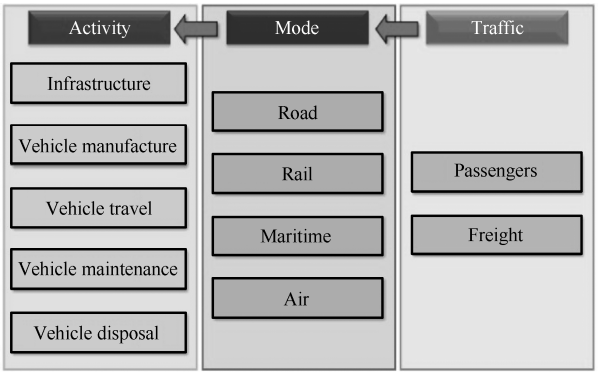


Fig. 4-3 Transportation activities affecting the environment

Infrastructure. The environmental impacts of the construction and maintenance of transport infrastructure.

Vehicle manufacture. The resources and energy consumed in the manufacturing process have an environmental impact.

Vehicle travel. Environmental impacts the outcome of regular transport vehicle use, which varies by mode.

Vehicle maintenance. The consumption and disposal of parts during maintenance can have environmental impacts.

Vehicle disposal. Once the useful life of a vehicle is over, its disposal may have some environmental impacts.

The Environmental Impact Factors of Transport

Pollutant emission & energy consumption

The emission of pollutants and energy consumption, can be summarized as follows:

Network structure influences the spatial distribution of emissions. Centralized networks concentrate the traffic and emissions at specific locations (hubs), but are using less energy. Dispersed networks may be perceived at the local scale as more environmental friendly, but are consuming much more energy.

Traffic induces the level of emissions and energy consumption since it is related to the utilization level of a transport system.

Mode choice is related to the nature of emissions. For instance, different transport modes have different energy requirements and levels of efficiency. A car-dependant transport system has different environmental problems than a transport system leaning on public transit.

Congestion

Traffic congestion is a major problem causing delays to journeys, driver frustration and excessive costs by way of increased fuel usage and additional driver costs (e.g. for overtime payments), and it adds significantly to the amount of pollutants being discharged into the atmosphere. Largely, traffic congestion occurs where infrastructure capacity, due to old infrastructures or poor planning, is insufficient to cope with demand, particularly at peak periods. Solutions to the problem lie mainly in making schemes that either reducing traffic in particular areas or on specific routes or schemes that encourage a diversion of traffic to alternative modes.

Land use

Transport infrastructure, through land-take and intrusion, has a permanent and often irreversible impact on the environment. Land requirements for freight distribution take two major dimensions (as Fig. 4-4 shows):

Transportation. Both modes and terminals consume space for the setting of their respective infrastructures. The land take of infrastructures such as roads and ports can be extensive, particularly in the points of convergence of global material flows.

Storage. Include various facilities to hold freight in inventory such as bulk storage facilities and warehousing facilities for break-bulk. Distribution centers are particularly space-consuming as various value-added activities are performed, including consolidation and deconsolidation, cross-docking and storage.

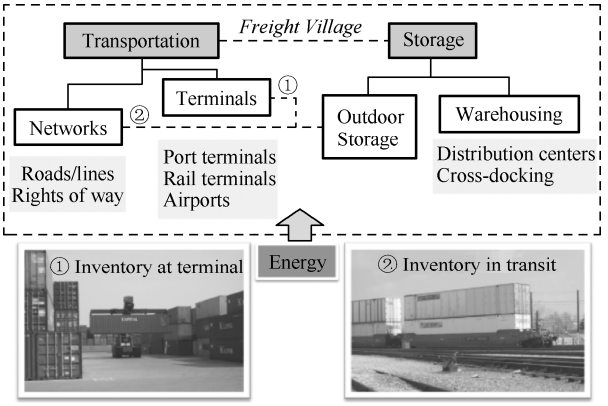


Fig. 4-4 Land Requirements for Freight Distribution

Dangerous goods

The transportation of dangerous goods carries a potential risk for the environment as well as for human life. Road transport accounts for a large proportion of such carriage, so the risks exist for accidental pollution of the environment and, since this form of transport invariably operates within relatively close proximity to the public, harm to people as a result of spillage incidents and more serious lorry accidents. While the road carriage of dangerous goods is very strictly controlled and enforced by a large body of complex legislation and agencies, this in itself is not sufficient to eliminate the risks mentioned above. The preferable solution must be that as much of this traffic as possible should be conveyed by rail and waterway; both modes being in much less close proximity to the general public.

New Words and Expressions

infrastructure ['infrəstrʌktʃə(r)] *n.*	基础设施，基础建设
spatial ['speiʃl] *adj.*	空间的
dispersed [di'spɜːst] *adj.*	分散的，辐射的
congestion [kən'dʒestʃən] *n.*	拥挤，堵车
intrusion [in'truːʒən] *n.*	闯入，打扰
irreversible ['iri'vɜːsəbl *adj.*	不可逆的，不能翻转的
convergence [kən'vɜːdʒəns] *n.*	汇聚，相交
consolidation [kən'sali'deiʃən] *n.*	拼箱
legislation ['ledʒis'leiʃn] *n.*	立法，法律法规

Notes

1．Centralized networks concentrate the traffic and emissions at specific locations (hubs), but are using less energy. Dispersed networks may be perceived at the local scale as more

environmental friendly, but are consuming much more energy.

尽管核心型网络结构在某些特定位置（网络结构中的核心点）集中了车流和排放物，但能源消耗较少。分散型网络结构当地规模不大，环境更加友好，但能源消耗更多。

2．A car-dependant transport system has different environmental problems than a transport system leaning on public transit.

依赖汽车的交通系统和依靠公共运输相比有不同的环境问题。

3．Largely, traffic congestion occurs where infrastructure capacity, due to old infrastructures or poor planning, is insufficient to cope with demand, particularly at peak periods.

交通堵塞主要是由于旧的基础设施或者不好的规划，使得基础设施容量无法满足（交通）需求，尤其在高峰期，导致交通堵塞。

4．Road transport accounts for a large proportion of such carriage, so the risks exist for accidental pollution of the environment and, since this form of transport invariably operates within relatively close proximity to the public, harm to people as a result of spillage incidents and more serious lorry accidents.

道路运输在此类（危险货物）运输中占据较大的比例，因此存在环境污染意外事故的风险。此外，当发生泄漏或者更加严重的货车意外事故，由于这种运输形式在运输过程中相对靠近公共场所，也会存在危害居民的风险。

Exercises

I．Answer the following questions

1．How does the transport system affect the enviroment?

2．What are the environment impact factors of transport?

II．Extend work

Investigate the local environmental transport issues, describe how does freight industry affect the enviroment.

Chapter 5 Inventory Management



Chapter Outline

Part I Concept and Types of Inventory

- Concept of Inventory
- Purposes of Inventory
- Types of Inventory
 - Manufacturer inventory
 - Wholesaler inventory
 - Retailer inventory

Part II Inventory Management Strategies

- Material Requirements Planning(MRP)
- Distribution Requirements Planning(DRP)
- Vendor-managed Inventory(VMI)
- Just-in-time Inventory Management

Part III Supplementary Reading: *Case study: JIT in the Smog Co. Production System*

- Performance Measure for Production System
- Changes to Customer Requirements
- Traditional Reaction to Customer Demands for Better Service

Part I Concept and Types of Inventory

Concept of Inventory

Inventory is costly

Inventory is a large and costly investment. Better management of firm inventories can improve cash flow and return on investment.

The inventory requirements of a firm depend on the network structure and the desired level of customer service. Theoretically, a firm could stock every item sold in a facility dedicated to serve each customer. Few business operations could afford such a large inventory commitment because the risk and total cost would be prohibitive. The objective is to achieve the desired customer service with the minimum inventory, consistent with lowest total cost.

Purposes of Inventory

Economies of scale

Facilitates economies of scale. Management may decide, for example, to purchase large quantities of an item in order to qualify for a discount. Or lower transportation costs may be realized by shipping larger quantities at one time. Similarly, a long production run may significantly reduce manufacturing costs. In every case, inventory is being utilized as a way to obtain savings in other parts of the logistics system.

Balancing supply and demand

Offers a means of balancing supply and demand. Some firms can only sell their products at certain times of the year. In order to utilize their fixed investment in buildings and equipment and maintain a skilled labor force, managers may decided to produce all year and store the finished goods until the selling season arrives.

Ensuring customer demands

Provides protection from uncertain demand. Despite management's best forecasting efforts, demand can never be known with absolutely certainty. Similarly, transport vehicles break down, raw materials may suddenly be unavailable. And manufacturing lines may stop. For all of these reasons, inventory is utilized to ensure that customer needs are met even when the production process itself is interrupted.

Inventory enables specialization

Specialization. Inventory makes it possible for a firm's plants to specialize in the products that it manufactures. The finished products can be shipped to field warehouses where they are mixed to fill customer orders. The economies that result from the longer production runs and from savings in transportation cost more than offsets the cost of additional handling.

Inventory is held throughout the supply chain

Inventory as a buffer. Inventory is held throughout the supply chain to act as a buffer for the following critical interfaces:

- Supplies-procurement (purchasing)
- Procurement-production
- Production-marketing
- Marketing-distribution
- Distribution-intermediary
- Intermediary-consumer/user

Symptoms of poor inventory management

Excessive inventory. Excessive inventories may compensate for deficiencies in basic design of a logistics network and to some degree inferior management. However, excessive inventory used as a crutch will ultimately result in higher than necessary total logistics cost. Symptoms of poor inventory management are described as following:

- Loss of customers
- Increasing number of back-orders
- Increasing investment in inventory with back-orders remaining constant
- Increasing number of orders canceled
- Periodic lack of sufficient storage space
- Deteriorating relationships with intermediaries, as typified by dealer cancellations and declining orders
- Large quantities of obsolete items

Types of Inventory

Manufacturer inventory

Manufacturer's inventory is long term

For a manufacturer, inventory risk is long term. The manufacturer's inventory commitment starts with raw material and component parts, includes work-in-process, and ends with finished goods. In addition, finished goods are often positioned in warehouses in anticipation of customer demand. In some situations, manufacturers are required to consign inventory to customer facilities. In effect, this practice shifts all inventory risk to the manufacturer. Although a manufacturer typically has a narrower product line than a retailer or wholesaler, the manufacturer's inventory commitment is deep and of long duration.

Wholesaler inventory

Wholesaler's inventory has a economic function

A wholesaler purchases large quantities from manufacturers and sells smaller quantities to retailers. The economic function of a wholesaler is the capability to provide retail customers with assorted merchandise from different manufacturers in specific quantities. When products are seasonal, the wholesaler may be required to take an inventory position far in advance of the selling season, thus increasing depth and duration of risk. One of the greatest challenges of wholesaling is product-line expansion to the point where the width of inventory risk approaches the retailers, while depth and duration of risk remain traditional for the wholesalers. In recent years, retail clients have also forced a large increase in depth and duration by shifting inventory responsibility back to wholesalers.

Retailer inventory

Retailer inventory risk is wide

For a retailer, inventory management is about buying and selling speed. The retailer purchases a wide variety of products and assumes a substantial risk in the marketing process. Retailer inventory risk can be viewed as wide but not deep. Due to the high cost of store location, retailers place prime emphasis on inventory turnover and direct product profitability. Inventory turnover is a measure of inventory velocity and is calculated as the ratio of annual sales divided by average inventory.

Although retailers assume a position of risk on a variety of products, their position on any one product is not deep. Risk is spread across more than 30,000 Stock Keeping Units(SKUs) in a typical supermarket. A discount store offering general merchandise and food often exceeds 25,000 SKUs. A full-line department store may have as many as 50,000 SKUs.

How does retailer try to avoid risk

Faced with this width of inventory, retailers attempt to reduce risk by pressing manufacturers and wholesalers to assume greater and greater inventory responsibility. Specialty retailers, in contrast to mass merchandisers, normally experience less width of inventory risk as a result of handling narrower assortments; however, they must assume greater risk with respect to depth and duration of inventory holding.

If a business plans to operate at more than one level of the distribution channel, it must be prepared to assume related inventory risk. For example, the food chain that operates a regional warehouse assumes risk related to the wholesaler operation over and above the normal retail operations.

New Words and Expressions

dedicated to [ˈdedikeit] *adj*	专用于
prohibitive [prəˈhibitiv, prəu-] *adj*	禁止的，抑制的，太贵的
transport vehicles	运输工具
specialization *n.*	专门化，专业化
buffer [ˈbʌfə] *n.*	缓冲器
procurement [prəˈkjuəmənt] *n.*	获得，采购
intermediary [ˌintəˈmiːdiəri] *n.*	中间人，中间商
excessive [ikˈsesiv] *adj.*	过量的
deficiency [diˈfiʃənsi] *n.*	短缺，缺少
compensate for [ˈkɔmpənseit] *v.*	补偿，弥补
crutch [krʌtʃ] *n.*	拐杖，支撑
symptom [ˈsimptəm] *n.*	症状，象征
back order	迟延订单
periodic [piəriˈɔdik] *adj.*	周期性的
deteriorate [diˈtiəriəreit] *v.*	恶化
obsolete [ˈɔbsəliːt] *adj.*	过期的，过时的，已废弃的
inventory turnover	库存周转率
inventory velocity	库存周转速度
stock keeping units (SKUs)	存货单位

Notes

1．The objective is to achieve the desired customer service with the minimum inventory commitment, consistent with lowest total cost.

其目标是以最小的库存保证，获得期望的客户服务，且与总成本最低相一致。

2．For all of these reasons, inventory is utilized to ensure that customer needs are met even when the production process itself is interrupted.

由于所有这些原因，库存被用于确保顾客需求得以满足，即使在生产过程本身被中断时也是如此。

3．The economies that result from the longer production runs and from savings in transportation cost more than offsets the cost of additional handling.

由较长的生产运行期和运输成本节省所产生的经济效果多于补偿额外的处理费用。

4．However, excessive inventory used as a crutch will ultimately result in higher than necessary total logistics cost.

然而，被作为支撑的过量库存最终将导致不必要的物流总成本。

5．The manufacturer’s inventory commitment starts with raw material and component parts, includes work-in-process, and ends with finished goods.

生产商的库存投入始于原材料和产品零部件，包括生产过程中的在制品，终止于制成品。

6．Inventory turnover is a measure of inventory velocity and is calculated as the ratio of annual sales divided by average inventory.

库存周转率是库存流通速度的一种衡量方式，用年销售量与平均库存的比率计算。

Exercises

I．Form phrases

资金周转

cash f_____

网络结构

network st_____

运输成本

tr_____ cost

运输工具

transport ve_____

现场仓库

fi_____ warehouse

延期交货订单

ba_____ order

库存周转率

inventory _____

客户服务

c_____ service

工作进程中的

work-in-pr_____

库存周转速度

inventory vel_____

存货单位

stock _____

II．Fill in the blanks and put the sentences into Chinese

1．The inventory requirements of a firm _____ on the network structure and the _____ of customer service.

2．Similarly, transport vehicles _____, raw materials may suddenly be _____.

3．_____ these reasons, inventory is utilized to _____ customer needs are met even when the production process itself is interrupted.

4．The finished products can _____ field warehouses where they are mixed to fill customer orders.

5．Excessive inventories may _____ deficiencies in basic design of a logistics network and to some degree _____ management.

6．_____ the high cost of store location, retailers _____ inventory turnover and direct product profitability.

7．A wholesaler purchases _____ quantities from manufacturers and sells quantities to retailers.

III. Complete the following table according to the given key words to get familiar with the purposes of inventory both in Chinese and English

Key word	Purposes (in English)	Purposes (in Chinese)
Economies	1.	2.
Supply and demand	3.	4.
Customer service	5.	6.
Specialization	7.	产品制造实现专业化
As a buffer	Inventory is held throughout the supply chain to act as a buffer	8.
Symptoms of poor inventory	9.	10.

IV. Group work

Work in a group of four. Three students play the role of a manufacturer, wholesaler and retailer respectively to discuss the risk and operations management of inventory, and one student works as a judge to mark the others' performance. You may develop your statements based on the key words given below:

Manufacturer: long term, raw material and component, work-in-process, finished goods, warehouse, customer facility

Wholesaler: assorted, seasonal, product-line expansion

Retailer: wide variety, buying and selling speed, inventory turnover

V. Challenging questions for discussion

1. What are the purposes of inventory?
2. When is inventory utilized?
3. Why is inventory used as a buffer?
4. What are symptoms of poor inventory management?

Part II Inventory Management Strategies

Material Requirements Planning (MRP)

How does MRP work

MRP deals specifically with supplying materials and component parts whose demand depends upon the demand for a specific end product. Essentially, MRP begins by determining how much of the final product

customers desire, and when they need it. Then MRP breaks down the timing and need for components (all of which could have different lead times) based upon that scheduled end-product need. An MRP system consists of a set of logically related procedures, decision rules, and records, which are designed to translate a master production schedule into time-phased net inventory also re-plans net requirements as a result of changes. MRP minimizes inventory to the extent that the master production schedule accurately reflects what is needed to satisfy customer demand. If the production schedule does not match demand, the company will have too much of some items and too little of others. Because the master production schedule drives the need for parts, MRP is said to be a pull system. In other words, the production schedule "pulls" components through the system in order to meet manufacturing needs.

Distribution Requirements Planning (DRP)

How does DRP work

DRP is a more sophisticated planning approach that considers multiple distribution stages and the characteristics of each stage. DRP is the logical extension of manufacturing requirements planning, although there is one fundamental difference between the two techniques. MRP is determined by a production schedule that is defined and controlled by the enterprise. On the other hand, DRP is guided by customer demand, which is not controllable by the enterprise. So, while MRP generally operates in a dependent demand situation, DRP operates in an independent environment where uncertain customer demand determines inventory requirements. The manufacturing requirements planning component coordinates the scheduling and integration of materials into finished goods. MRP controls inventory until manufacturing or assembly is completed. DRP then takes coordination responsibility once finished goods are received in the plant warehouse.

Comparing DRP with MRP

Vendor-managed Inventory (VMI)

Vendor-Managed Inventory (VMI) is an approach to inventory and order fulfillment whereby the supplier, not the customer, is responsible for managing and replenishing inventory. This appears at first sight to counter the principle of pull scheduling, because the preceding process (the manufacturer) is deciding how many and when to send to the next process (the retailer). In practice, the basis on which decisions will be

made is agreed with the retailer beforehand, and is based on the retailer's sales information. Under VMI, the supplier assumes responsibility for monitoring sales and inventory, and uses this information to trigger replenishment orders. In effect, suppliers take over the task of stock replenishment.

Potential benefits

The immediate benefit of VMI is access to data on:

- customer sales;
- inventory levels at the customers.

On one side, this may help the supplier to provide better control of the supply chain and so deliver benefits for both the customer and themselves. On the other side, having the supplier take the decision on the replenishment aims to minimize the impact of demand amplification. In the longer term, suppliers should integrate demand information into their organization and develop the capability to drive production with it. This helps to replace the traditional push scheduling with pull scheduling, based on meeting known demand instantaneously out of manufacturing.

Potential problems in setting up a VMI system

Other than the practical difficulties of setting up a VMI system, a number of problems can prevent the above benefit:

- Unwillingness to share data. Retailers may be unwilling to share their marketing plans and product range strategies with manufacturers.
- Seasonal products. The benefits of VMI are quickly away in fashion and seasonal products, especially apparel.
- Investment and restructuring costs. Adopting a VMI approach incurs a high investment by the customer and supplier, and also takes time and effort.
- Retailer vulnerability. VMI will make the retailer more dependent on them.
- Lack of standard procedures. Customers may ask for different tagging methods or labeling. With many industrial products there is no bar-code standard.
- System maintenance. It needs a lot maintenance to the inventory record errors due to incorrect part counts, mislabeling, damage, loss and theft.

Just-in-time Inventory Management

JIT concept

In the early 1970s, Toyota Motor Manufacturing adopted JIT system, a new production strategy that used little inventory, shortened cycle times, improved quality, and eliminated waste and costs in the supply chain. It

was also adopted by American and European automakers in response to the growing success of their Japanese competitors. Later JIT concept spread to other industries such as computers, and became popular in manufacturing strategies around the world.

Just-in-time is a philosophy of continuous and forced problem solving. With JIT, supplies and components are "pulled" through a system to arrive where they are needed when they are needed. When good units do not arrive just as needed, a "problem" has been identified. This makes JIT an excellent tool to help operations managers add value by driving out waste and unwanted variability. Because there is no excess inventory or excess time in a JIT system, costs from unneeded inventory are eliminated and throughput improved. Consequently, the benefits of JIT are particularly helpful in supporting strategies of rapid response and low cost.

Advantages of JIT

More inventory turns. Because there is less stock on hand, the inventory that is maintained stays for a shorter period of time.

Better quality. High quality products must be received with a JIT system, otherwise the entire benefit production process collapses.

Less warehouse space. When there is less inventory, fewer and/or smaller warehouses are required.

Disadvantages of JIT

Risk of stock-outs. When firms eliminate inventory, the risk of stocking out can rise.

Increased purchasing costs. Theoretically, JIT means obtaining smaller amounts more frequently, which generally will not get purchasing discounts associated with buying large quantities at one time.

Small channel members may suffer. JIT may allow strong organizations to shift their inventory to smaller firms in the channel.

Environmental issues. JIT can lead to higher levels of traffic congestion and air pollution because of additional transportation required.

Zero inventory—JIT case in restaurant

JIT is also established practice in restaurants, where customers expect it, and a necessity in the produce business, where there is little choice.

Pacific Pre-Cut Produce, a $14 million fruit and vegetable processing company in Tracy, California, holds inventory to zero. Buyers are in action in the very early hours of the morning. At 6 a.m., production crews show up. Orders for very specific cuts and mixtures of fruit and vegetable salads and stir-fry ingredients for supermarkets, restaurants, and institutional kitchens pour in from 8 a.m. until 4 p.m.

Shipping begins at 10 p.m. and continues until the last order is filled and loaded at 5 a.m. the next morning. Inventories are once again zero, things are relatively quiet, and then the routine starts again. Pacific

Pre-Cut Produce has accomplished a complete cycle of purchase, manufacture, and shipping in about 24 hours. VP Bob Borzone calls the process the ultimate in mass-customization. “We buy everything as a bulk commodity, then slice and dice it to fit the exact requirements of the end user. There are 20 different stir-fry mixes. Some customers want the snow peas clipped on both ends, some just on one. Some want only red bell peppers in the mix, some only yellow. You tailor the product to the customer’s requirements. You’re trying to meet the need of a lot of end users, and each restaurant and retailer wants to look different.”

New Words and Expressions

Material Requirements Planning (MRP)	物料需求计划
Distribution Requirements Planning (DRP)	分销需求计划，配送需要计划
plant warehouse	工厂仓库
hybrid [ˈhaibrid] *n*	混合物
assumption [əˈsʌmpʃən] *n*	假设
eliminate [iˈlimineit] *v.*	消除，消灭
automaker [ˈɔːtəuˌmeikə] *n.*	汽车制造商
throughput [ˈθruːput] *n.*	产量，生产能力
stock [stɔk] *n.*	存货
replenishment [riˈpleniʃmənt] *n.*	补给
traffic congestion	交通堵塞
mass customization	大量客户化
tactics [ˈtæktiks] *n.*	策略，战术
bulk [bʌlk] *n.*	大量，大块
slice [slais] *v.*	切成薄片
dice [dais] *v.*	切成小方块
stir-fry [stəː] *n.*	用旺火炒，煎炒
clip [klip] *n.*	修剪

Notes

1．Under VMI, the supplier assumes responsibility for monitoring sales and inventory, and uses this information to trigger replenishment orders. In effect, suppliers take over the task of stock replenishment.

在 VMI 模式下，供应商承担了销售和库存监测的责任，并基于这些信息发送补给订单。实际上，供应商接受了存货补给任务。

2．The JIT concept then spread to other industries such as computers, and became firmly entrenched in manufacturing strategies around the world.

准时制生产的概念推广到其他行业，诸如计算机行业，并且牢固地植根于全球制造业战略之中。

3．Because there is no excess inventory or excess time in a JIT system, costs associated with unneeded inventory are eliminated and throughput improved.

因为在准时制系统里没有多余的库存或多余的时间，所以与不必要的库存相关的成本被消除了，产量得到了提高。

4．Because there is less stock on hand, the inventory that is maintained stays for a shorter period of time.

因为在手上的存货较少，所持有的库存也只维持较短的时间。

5．JIT can lead to higher levels of traffic congestion and air pollution because additional transportation is often required to maintain customer service levels in the absence of inventory.

在无库存条件下，经常需要增加额外的交通以保持客户服务的水平，这样准时制将导致更严重的交通堵塞和空气污染。

6．You tailor the product to the customer's requirements.

按照客户的要求，（提供）对产品进行量身定制式服务。

Exercises

I．Form phrases

装配线	与……联合
a_____ line	as_____with
在手上	交通堵塞
on h_____	traffic co_____
大量客户化	裁剪
mass_____	t_____
季节性产品	零售商的弱点
_____ product	_____ vulnerabiltiy

II．Fill in the blanks and put the sentences into Chinese

1．The concept was _____ by American and European automakers _____ the growing success of their Japanese competitors.

2．_____ is a philosophy of continuous and forced problem solving.

3．In _____, the production schedule "pulls" components through the system meet manufacturing needs.

4．DRP is a _____ planning approach that considers _____ stages and the characteristics of each stage.

5．Consequently, _____ of JIT are particularly helpful in supporting strategies of rapid response and _____.

6．When there is _____ inventory, fewer and _____ warehouses are required.

7. JIT is sometimes _____ as a system that allows strong organizations to _____ on smaller firms in the channel

III. Listen to the interview, answer the following questions and complete the sentences

1. What types of inventory does Frioto Lay have?
2. What is the main raw material Frioto Lay holds?
3. How is raw material of potato changed to products in process?
4. What is MRO?
5. Frioto Lay has _____ product lines.
6. Frioto Lay has the following inventory: _____days of corn, _____ days of cornmeal, _____days oil, _____days seasoning, _____days packing film.

IV. Challenging questions for discussion

1. Express the concept of VMI.
2. Please express advantages and disadvantages of JIT.
3. What do you think of zero inventory?
4. Tell the class a JIT story you know.
5. Why is MRP called a pull system?
6. What is DRP?

Part III Supplementary Reading

Case study: JIT in the Smog Co. Production System

Performance Measure for Production System

Smog Co. is a small supplier of well-engineered components. It produces a range of products grouped into families. Production of one of the higher volume product families has been organized into a flow process made up of four steps, which follow one after the other in sequence. Changeover from one product to another is simple, but takes around 10 minutes per machine. To minimize delays caused by changeovers, products tend to be made in batches. These batches move from one step to the next, where they queue on a first in, first out basis to be worked on, after which they move to the next step.

Key measures of the performance

Key measures of the performance of this process are the utilization of people and of machines. The objective is to keep utilization of both as high as possible. Fred Hollis, the Smog production manager, felt pleased

with performance as he looked out across the factory. He was pleased because his machines and people were busy, there were plenty of finished goods on hand, which the sales team could use to supply customers, and there was stock to call upon if product demand increased. Everything seemed to be under control.

Changes to Customer Requirements

The motivation to change from the current system has been low in the past, as the process at Smog Co. is a reliable one, which has worked well for the company. The big three customers, who take three-quarters of sales, tend to order the same things in similar quantities one week in advance of delivery. With a production lead time of three weeks, Smog Co. uses a forecast to schedule production and make sure that finished goods stocks will be available to meet predicted demand. Consistent demand means that forecasts are often close to real demand, so stockouts are rare. In fact the only time this occurred was an incident a couple of years ago, when a key machine went down and a spare part took a long time to source. Current inventory levels now include safety stock to provide cover against a similar problem in the future.

Consistent demand are close to real demand

When the company found that certain finished goods were selling slowly, the sales team was particularly good at finding a way to move them. Sometimes prices were cut; at other times sales used special promotions. If production was too high, or the forecast was a bit optimistic, then there were ways of selling surplus stock, and the sales team seemed to enjoy the challenge.

Move good which are sold slowly

Recently, however, this well-understood position began to change. The main customers started to use a number of new strategies to compete with each other. First one and then a second of them announced that it will be reducing the call-off time for its products from one week to two working days. At the same time they are all looking for a 5 percent cost reduction, and are demanding quality improvement.

Traditional Reaction to Customer Demands for Better Service

The combination of demands for better services caused Smog management some concern. The obvious response to the changes in ordering patterns was to increase stock levels to cater for unexpected variations in demand. This approach had worked before, when it was used to justify the safety stocks that covered production problems. It

Stocks were increased to cover production problems

seemed worth trying again, so stocks were increased.

Overtime were increased to maintain output

Things went well over the first few months, during which time delivery performance remained goods, while the customers went ahead with their plan to reduce the order lead time. Keeping up with these orders provided the production manager with a few headaches. Preventing stockouts led to an increase in the number of batches being expedited through the factory. This disrupted the production plan, increased the number of machine changeovers, and lowered productivity. As a result, overtime increased in order to maintain output.

Quality problems were increased

The higher level of inventory meant that quality problems were harder to detect. In one case a new operator missed a drilling operation. By the time the first customer discovered the error, nearly two weeks' worth of production had to be recalled and reworked.

More space were taken up

The higher inventory levels were also taking up more space. Fred Hollis had submitted a requisition to the finance director to pay for more storage racking. The extra racks were necessary because existing ones were full, and parts stored on the floor were suffering occasional damage in an increasingly cramped factory. Some parts were recently returned by a customer, who felt that damaged packaging indicated damaged products. Naturally, Fred was concerned when his request for more storage space was turned down owing to spending reductions imposed in response to price cuts demanded by customers.

High stock affects competitiveness badly

Reflecting on what had happened at Smog, the increase in stock levels had badly affected competitiveness. Smog Co. was experiencing the consequences of trying to forecast demand and using the forecast to determine what to make. Their 'make to stock' approach was responsible for:

- Removing the company's ability to be responsive to changes in either quantities or product mix;
- Increasing costs and making quality problems worse;
- Burying underlying production problems under inventory, and thereby preventing efforts to uncover and resolve them;
- In conclusion, while the company had been motivated by its customers to change, the direction it took seemed to have caused many problems.

New Words and Expressions

a range of　　一系列，一套

stockout ['stɔkaut] *n.*	无存货，缺货
cater for	迎合，为提供所需
surplus ['sɜ:pləs] *n. adj.*	剩余，（贸易）顺差，盈余 剩余的，过剩的
disrupt [dɪs'rʌpt] *v.*	破坏，使中断
expedite ['ekspidait] *v. adj.*	加快，促进，发出 畅通的，迅速的，方便的
requisition [ˌrekwi'ziʃ(ə)n] *n.*	征用，要求，申请书，引渡要求
cramped [kræmpt] *adj.*	狭窄的，难懂的
make to stock	存货生产制

Notes

1．To minimize delays caused by changeovers, products tend to be made in batches.

为了减少因更换调试引起的延误，得按批量生产产品。

2．Key measures of the performance of this process are the utilization of people and of machines.

这个流程的绩效评估关键是人和机器的利用率。

3．Current inventory levels now include safety stock to provide cover against a similar problem in the future.

目前的库存包括了未来能解决类似问题的安全库存。

Exercises

I. Phrases translation

product demand	finished goods
safety stock	inventory level
surplus stock	成本降低
质量改进	生产计划
产品结构	存货生产制

II．Fill in the blanks and put the sentences into Chinese

1．Consistent demand means that forecasts are often close to_____, so stockouts are_____.

2．If _____was too high, or the forecast was a bit optimistic, then there were ways of selling_____, and the sales team seemed to enjoy the challenge.

3．The obvious response to the changes in_____ patterns was to increase stock levels to cater for unexpected variations in_____.

4．_____stockouts led to an increase in the number of batches being expedited through the factory. This disrupted the production plan, increased the number of_____, and

lowered_____.

III. Answer the following questions

1. List the actions that Smog Co. took to respond to the new demands being placed on it by customers. Group your responses under the headings of stock levels, level of expediting, and storage space. Briefly describe the effects that these actions had on production performance.

2. Use the 'Pyramid of key factors that underpin JIT' to describe the factors that caused these actions to affect the company's ability to respond to the demands being placed on it by customers.

Chapter 6 Logistics Information



Chapter Outline

Part I Logistics Information System and Order Processing System

- Functionality of Logistics Information
- Logistics Information Management
- Forecasting Methods
- Order Processing System

Part II Logistics Software

- Warehouse Management Systems(WMS)
- Transportation Management Systems(TMS)
- Enterprise Resource Planning Systems(ERPS)

Part III Supplementary Reading: *Cisco's E-commerce Connection*

- Starting of Cisco's E-commerce System
- Virtual Order of the System
- Advantages of the E-commerce System
- Benefits from the Cisco's E-commerce Connection

Part I Logistics Information System and Order Processing System

Functionality of Logistics Information

What is a logistic information

Part of an organization's ability to use logistics as a competitive weapon is based on its ability to assess and adjust actual logistics performance real time. This means the ability to monitor demands and inventory levels as they occur, to act in a timely manner to prevent stockout, and to communicate potential problems to customers. This requires excellent, integrated logistics information systems. These systems impact all of the logistics activities presented earlier, and must be integrated and take into account marketing and production activities. Such systems also must be integrated with other members of the supply chain, to provide accurate information throughout the channel from the earliest supplier through the ultimate customer.

How a logistics information system works

Logistics information systems (LIS) may link a variety of information technologies, as is the case with Wal-Mart. Wal-Mart uses EDI to communicate with suppliers, receiving information such as shipment, timing, quantities, and even invoicing. It uses bar coding to scan sales as customers make their purchases. The bar-code information is thus captured at the point of sale. Wal-Mart then downloads the information to suppliers. Suppliers use these data to determine the orders they need to supply to Wal-Mart, rather than having Wal-Mart create the orders. This system provides suppliers with rapid feedback on sales, so that they can anticipate production requirements based on accurate, near real-time sales data. Wal-Mart also benefits because it no longer has to place orders with many suppliers, and it can keep its inventory levels to a minimum.

Logistics Information Management

Managers faces with too much information

One of the by-products of the computer era is that managers are often faced with more information than can be effectively used for decisions. This abundance of data has several detrimental effects, among which are slower decisions, confused decisions, and the obscuring of important information.

Unnecessary data shall be screened out

For example, a warehouse manager at a consumer products company receiving weekly reports from corporate management. If a computer output of great bulk is delivered with important and unimportant information mixed, inexpert managers will have difficulty finding the data that they really need. Expert managers will find the decision-relevant information, but will lose time developing the search expertise to do so. Both novice and experienced managers may simply stack the report in a corner of the office, to read when they have time. Of course, the managers will continue making decisions based on some other source of information and when reading time becomes available much of the formerly relevant information will be obsolete. Decision support systems screen out irrelevant information, so managers can have the precise data they need to deal with the issue at hand.

Forecasting Methods

LIS aids forecasting

One management task that is greatly aided by an LIS is forecasting. By having better data available, analysts can generate more timely and accurate forecasts that more closely reflect environmental realities. A number of standardized forecasting methods are available. These have been categorized into three groups: qualitative, historical projection, and causal. Each group differs in terms of the relative accuracy in forecasting over the long run versus the short run, the level of quantitative sophistication used, and the logic base (historical data, expert opinion, or surveys) from which the forecast is derived.

Needs for logistics forecasting

Generally, the logistician need not be directly concerned with the broad spectrum of available forecasting techniques. Because forecasted information, especially the sales forecast, is needed by various segments of the organization, the forecasting activity is often centralized in the marketing, planning, or business analysis area of the firm. Forecasts of medium or long-term time periods usually are provided to the logistician. Unless there is a need to develop specific long-term forecasts, the logistician's need is limited to the short-term forecasts that assist in inventory control, shipment scheduling, warehouse load planning, etc. Indeed, "simple" models of the time-series variety often predict as well or better than more sophisticated complex versions.

Order Processing System

Automatic way to place an order

One way that an order can be placed is for the customer to write it up by hand and mail or give it to a sales representative who takes it back to the firm. Alternatively, the buyer could fax or telephone the order to a clerk who then writes it. Another approach is for the customer to place his or her order over the phone to a salesperson who simultaneously inputs it directly into the computer. Finally, by utilizing some preprogrammed criteria, orders can be placed automatically by the buyer's computer directly to the seller's system without human involvement. There are clear trade-offs in each situation between cost and information quality. When the ordering process is completely manual, the cost is relatively low but the procedure is slow and prone to errors. As the order placement activity becomes more automated, customer requests can be handled more quickly and with fewer mistakes, but the initial costs increase with the sophistication of the system.

Information of processing an order

Processing an order requires the flow of information from one department to another, as well as the referencing or accessing of several files or databases, such as customer credit status, inventory availability, and transportation schedules. The information system may be fully automated or manual, most are somewhere in between.

Functions of an order processing system

The order processing system sets many logistics in motion, such as:

- Determining the transportation mode, carrier, and loading sequence.
- Inventory assignment and preparation of picking and packing lists.
- Warehouse picking and packing.
- Updating the inventory file, subtracting actual products picked.
- Automatically printing replenishment lists.
- Preparing shipping documents (a bill of lading if using a common carrier).
- Shipping the product to the customer.

New Words and Expressions

customer demand	客户需求
stockout	缺货
feedback [ˈfiːdbæk] *n.*	反馈
real-time	实时
detrimental [ˌdetriˈmentl] *adj.*	有害的，不利的
obscure [əbˈskjuə] *v.*	遮掩，搞混

decision- relevant information	决策相关信息
logistician	物流从业人员，物流管理人员，物流师
novice ['nɔvis] *n.*	新手，初学者
inventory control	库存控制
obsolete ['ɔbsəli:t] *adj.*	过时的，已不用的，废弃了的
standardized ['stændə,daizd] *adj.*	标准化了的
medium or long-term time periods	中期或长期
shipment scheduling	运输时间安排
warehouse load planning	仓库积载计划
prone to errors	易出错的
sophistication [sə,fisti'keiʃən] *n.*	复杂，高级，先进

Notes

1．to assess and adjust actual logistics performance real time.

实时评估和调整实际的物流运作。

2．This abundance of data has several detrimental effects.

这大量的信息有若干有害的效果。

3．Giving managers more than they need to know can be very dangerous when it keeps them from effectively receiving and using the information relevant to their current problems.

给经理们的信息多于他们所需知道的，这使他们不能有效地接收、利用那些与当前问题相关的信息，那就可能很危险了。

4．Managers can have the precise data they need to deal with the issue at hand without examining a lot of extraneous and irrelevant information.

经理们可获得处理手头问题所需的准确的资料，而无须检验大量无关紧要的和不相干的信息。

5．These have been categorized into three groups: qualitative, historical projection, and causal.

这些（预测方法）分为三类：定性预测、趋势预测、因果预测。

6．Indeed, “simple” models of the time-series variety often predict as well or better than more sophisticated complex versions.

事实上，各种时间序列法的“简单”模型通常能预测得同更高级的复杂的模型一样好或更好。

7．The initial costs increase with the sophistication of the system.

初始成本随着系统复杂性的提高而增加。

8．Updating the inventory file, subtracting actual products picked.

更新库存资料、减去实际已分拣好的产品。

Exercises

I. Form phrases

竞争武器	物流信息系统
_____ weapon	_____ information system
库存水平	实时销售信息
_____ levels	_____sales data
潜在的问题	决策相关信息
_____ problem	_____-relevant information
物流活动	决策支持系统
_____activities	decision _____
最终顾客	长期预测
_____ customer	long-term _____
信息技术	库存控制
_____technologies	_____control

II. Fill in the blanks and put the sentences into Chinese

1. This requires _____ logistics systems.
2. Decision support systems screen out _____ use of the important data.
3. Both _____ in a corner of the office, to read when they have time.
4. By having better data available, analysts can generate _____ environmental realities.
5. Such systems also must be _____ the channel from the earliest supplier through the ultimate customer.
6. Wal-Mart also benefits because _____ to a minimum.

III. True or false statement

Identify the main functions of an order processing system.

() 1. Warehouse picking and packing
() 2. Connecting to the internet
() 3. Updating the inventory file, subtracting actual products picked
() 4. Automatically printing replenishment lists
() 5. Preparing shipping documents
() 6. Inventory assignment and preparation of picking and packing lists
() 7. Sales forecasting
() 8. Shipping the product to the customer
() 9. Evaluating the customers
() 10. Determining the transportation mode, carrier, and loading sequence

IV. Listen to the conversation, answer the following questions and complete the sentences

1. What is one of the Wal-Mart's most important tools?
2. What are the functions of a Telxon?
3. Why is the barcode so important?
4. How many items do they have in a store of Wal-Mart?
5. With its own supercomputer, Wal-Mart streamlined its_____, _____from plant to store shelf.
6. Wal-Mart became a world leader in_____and promoted greater efficiency among its _____.

V. Challenging questions for discussion

1. Why an excellent, integrated logistics information system is required in a logistics system?
2. What are the information technologies in Wal-Mart's information system?
3. Why is the LIS so important to a logistics manager?
4. Explain the order processing procedure.
5. What are the three groups of standardized forecasting methods?

Part II Logistics Software

This part is going to review the development of some software applied in warehousing, transportation and resource planning. The functionalities/benefits are detailed in relation to logistics and supply chain management.

Warehouse Management Systems (WMS)

Role of WMS

WMS are providing real time views on material flows within the warehouse, i.e. tracking and keeping note of the movement and storage of material within a warehouse facilitating the optimal use of space, labor, and equipments. From the managers' point-of-view, this means that a WMS enables to optimize transactions to and from warehouse operators, recognize problem areas and major shifts in activity levels and patters, while making it possible continuously determine performance indicators, such as productivity, shipping and inventory accuracy, warehouse order cycle time, and storage density.

WMS connect to other activities

Typical WMS systems are well connected to material handling automation and transportation systems. Some WMS systems also include a route planning functionality that makes them related with the TMS systems. Some of the large suppliers of these software products are,

WMS software producers

amongst others, Marc Global Services, PeopleSoft, SSA Global, Microsoft Business Solutions, Oracle Corporation, JD Edwards, and PULSE Logistics Systems. Table 6-1 lists some key functionality of WMS systems and the claimed benefits of using the software.

Table 6-1 Functionality and benefits for WMS

Functionality	Claimed benefits
Inventory management Maintain items, groups, orders	Real time enterprising in material management
Order flow Retrieval orders Storage orders Track and trace	Improved operations in terms of accuracy; reduced paper work. Integration to automated warehouses

Transportation Management Systems (TMS)

Role of TMS

Transportation management systems (TMS) are software applications that facilitate the procurement of transportation services, the short-term planning and optimisation of transportation activities, and the execution of transportation plans with continuous analysis and collaboration. They typically provide route planning, transportation control features and advanced reporting. These software packages also automate the work of traffic controllers and provide a systematic way to generate documents and labels. Table 6-2 presents the functionality provided by typical TMS systems and claimed benefits for business.

Table 6-2 Functionality and benefits for TMS

Functionality	Claimed benefits
Optimize delivery routes for retailers	Improve processes, drive savings and manage more business without increasing resources
Operational transportation control: booking, labeling and document printing, track and trace	Improve operational costs in collecting goods from suppliers and delivering to distribution centers. Improved utilization of fleet
Transportation business control: load tendering	Reduced costs: improved invoicing and tendering system
Route planning	More precise scheduling: managing scale, constraints, and seasonal fluctuations of its operations
Real time information	Streamlining reporting and analysis procedures to achieve real-time inventory information

Enterprise Resource Planning Systems (ERPS)

ERP is a business management system made up from a collection of

applications that integrates all facets—marketing, finance, human resources, sales, manufacturing, logistics, etc.—of the company into a common database.

Information flows in ERP

Fig.6-1 describes typical modules in ERP systems. The names of software modules may vary, but they all have similar functionality. From an information management point-of-view, the information flows from the upper part of the picture downwards:

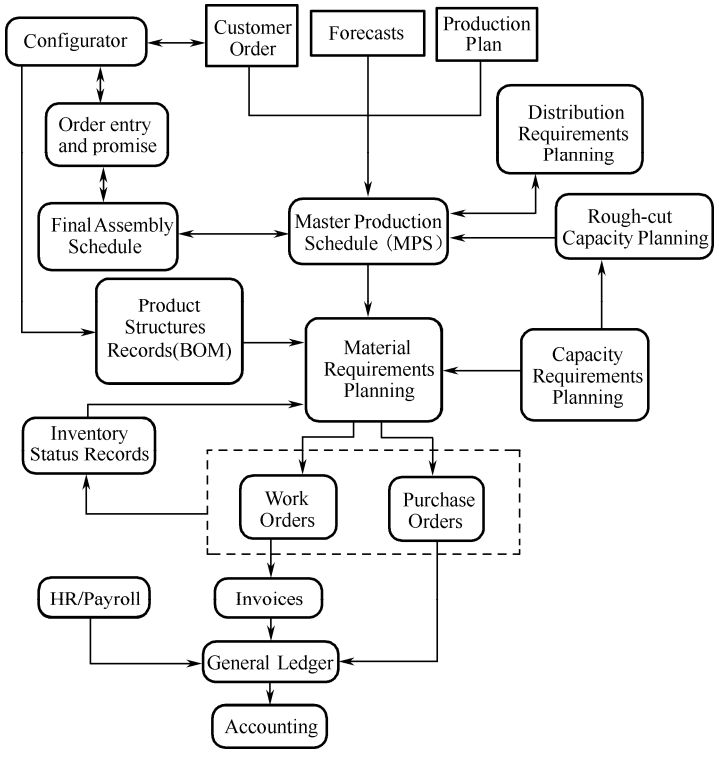


Fig.6-1 General structure of ERP system

- Production master schedule inputs sales orders and forecasts. In case of complex products, the products may be configured prior to taking the sales order in. Order entry and promise system may be connected if all required information is stored in the system.
- MPS generates schedule, whereas materials requirements planning creates purchasing orders for suppliers and production orders for plants based on MPS, capacity, bill-of-materials, and inventory records.
- Inventory statuses are updated based on shipments and receiving of parts, components and finished products.
- Financial control follows the real process. Invoices are sent to customers, employees are paid according to payroll accounting, and

suppliers are paid with regards to received goods and services. Financial records end up with bookkeeping, which creates the balance sheet as well as profit/loss statement for the fiscal period.

Main suppliers of ERP software

Each part of the software is connected to each other and piece of information should be stored in only one place. Duplicate records are avoided by linking the information in the single database. In many cases these information systems are required to support multiply currencies and languages, specific, industries, and an ability to customize without programming as well. Currently, the leading vendors of ERP software application include SAP, Oracle, BAAN, PeopleSoft and JD Edwards. Table 6-3 summarizes the core functionalities and benefits stemming from ERPs.

Table 6-3 Functionality and benefits for ERP

Functionality	Claimed benefits
Integrated material handing, human resources and finance control	Integration and standardization of processes: improved customer service (?)
Multi-site, multi-languages, multi-user systems	Distributed responsibility, despite information transparency. "bring the organizations'people, systems and processes together"
Integration of data storage	Cost savings: each customer or address is entered only one in the system
Advanced reporting features	Evaluation of customers, products, suppliers etc. Tracking back the habits of doing business and to get more control on the complex system

New Words and Expressions

tactical ['tæktikəl] *adj.* 战术的，策略的
schedule ['skedʒjul] *v. n.* 安排日程，安排表
optimize ['ɔptimaiz] *v.* 使最优化，使尽可能有效
patter ['pætə] *n.* 节奏，速度
configurator [kən'figjʊreitə] *n.* 配置器
invoice ['invɔis] *n. v.* 发票，开发票
HR/payroll manager 人力资源/工资经理
general ledger 总账
accounting [ə'kauntiŋ] *n.* 财会
fiscal ['fiskəl] *adj.* 政府财政的
balance sheet 资产负债表
customize [kʌstəmaiz] *v.* 定制，定做

Notes

1．From the managers' point-of-view, this means that a WMS enables to optimize transactions to and from warehouse operators, recognize problem areas and major shifts in activity levels and patters, while making it possible continuously determine performance indicators, such as productivity, shipping and inventory accuracy, warehouse order cycle time, and storage density.

从管理者的角度看，WMS 有助于优化与仓库经营者之间的交易、找到问题所在、实现（仓储）活动水平和效率的重大转变，同时又可能不断地确定绩效指标，诸如生产效率、运输和库存的准确性，仓库订货周期和存储密度。

2．Transportation management systems (TMS) are software applications that facilitate the procurement of transportation activities, and the execution of transportation plans with continuous analysis and collaboration.

运输管理系统是便利运输服务的采购、通过持续的分析与协作而实施运输计划的应用软件。

3．Inventory statuses are updated based on shipments and receiving of parts, components and finished products.

根据配件、组件和成品的运输和收货情况对库存状况进行更新。

Exercises

I．Phrases translation

Warehouse Management Systems (WMS)	sales orders
Transportation Management Systems (TMS)	promise system
material flows	purchasing orders
material handling automation	financial records
Enterprise Resource Planning Systems (ERPS)	duplicate records

II．Fill in the blanks and put the sentences into Chinese

1．WMS systems are providing real time views on _____, i.e. tracking and keeping note of the movement and storage of material within a warehouse facilitating the optimal use of space, labour, and equipments.

2．Some WMS systems also include a _____ that makes them related with the TMS systems.

3．Transportation management systems (TMS) are software applications that facilitate_____ _____, and the execution of transportation plans with continuous analysis and collaboration.

4．In many cases these information systems are required to support multiply currencies and languages, specific, industries, and an ability _____ as well.

5．In case of complex products, the products may be configured _____. Order entry and promise system may be connected if all required information is stored in the

system.

III. Challenging questions for discussion

1. What are the functions of Warehouse Management Systems (WMS)?
2. What are the Transportation Management Systems (TMS)?
3. What is the definition of Enterprise Resource Planning systems (ERP)?
4. How does the information flow in the Enterprise resource planning systems?
5. What are the functions of Enterprise resource planning systems?

Part III Supplementary Reading

Cisco's E-commerce Connection

Starting of Cisco's E-commerce System

Cisco developed the world's largest e-commerce site

In 1997, Cisco sold more than $1 billion of a total $6.4 billion worth of routers, switches, and other network interconnect devices over the Web. Cisco's Web site (www.cisco.com) has developed over several years, beginning with technical support for customers and developing into one of the world's largest e-commerce sites. Today, Cisco offers nearly a dozen Internet-based applications to both end-use customers and reseller partners.

Cisco began providing Internet support in 1991, including software downloads, defect tracking, and technical advice. Customers and reseller partners were logging onto Web site about one million times a month to receive technical assistance, check orders, or download software. The on-line service has been so well received that over 70% of all customer service inquiries are delivered on-line, as are 90% of software updates.

Virtual Order of the System

How does the virtual order system work?

Cisco builds virtually all its products to order, so there are very few off-the-shelf products. Before the Cisco Web site, ordering a product was lengthy and complicated. Cisco began deploying e-commerce tools in 1995, and by 1996, the Internet Product Center allowed users to purchase any Cisco product over the Web. In 1999, the same customer's engineer could sit down at a PC, configure a product on-line, immediately detect any errors, and route the order to Cisco's procurement department. Cisco's large customers take advantage of immediate and automatic

access to Cisco's on-line ordering, configuration, and technical support tools. But, because of their large purchasing volumes, these large customers sought a faster alternative to Cisco's Web site. Therefore, an alternative program was launched in 1997 that interactively links the customer's and Cisco's computer systems over the Internet and private networks. In this way the configuration of new system and the price is validated at the customer's own PC before the order is placed.

Advantages of the E-commerce System

Advantages for both Cisco and its customers

With on-line pricing and configuration tools, about 98% of the large orders go through Cisco's system, saving time for both Cisco and its customers. Lead times were reduced, down from 4 to 10 days to only 2 to 3 days, and the productivity of customer' order increased an average of 20%. In the first 5 months of the system's operation in 1996, Cisco booked over $100 million in sales on the Internet alone. In 1997, the figure grew more than tenfold. Cisco closed 1998 with $4 billion in on-line sales. On-line sales grew to 85% of total volume during 1999, reaching $37 million per day.

Benefits from the Cisco's E-commerce Connection

The system reduced the cost of operating, technical staff and software distribution, but enhanced technical support and customer service

- Reduced operating cost: Cisco estimates that putting its applications on-line saves the company hundreds of millions of dollars per year, or over 17% of the total operating costs.
- Enhanced technical support and customer service: With 70% of its technical support and customer service calls handled on-line, Cisco's technical support productivity has increased by 200% to 300% per year.
- Reduced technical support staff cost: The on-line technical support reduces technical support staff costs by $125 million per year.
- Reduced software distribution cost: Customers download new software releases directly from Cisco's site, saving the company $180 million in distribution, packing, and duplicating costs per year. Having product and pricing information on the Web and Web-based CD-ROMs saves Cisco an additional $5 million per year in printing and distributing catalogs and marketing materials to customers.

New Words and Expressions

end-use customers and reseller partners	最终用户和销售伙伴
defect tracking	错误追踪
procurement department	采购部门
configuration [kən,figju'reiʃən] *n.*	结构，形状，配置
validate ['vælideit] *v.*	使有效，证实
duplicate ['dju:plikeit] *v.*	复写，复制

Notes

1．Cisco builds virtually all its products to order, so there are very few off-the-shelf products.
思科公司实际上建立了所有产品的订货系统，这样就很少有下架产品。

2．In this way the configuration of new system and the price is validated at the customer's own PC before the order is placed.
照此方法，新系统的结构配置和价格在下订单之前在客户自己的 PC 上就能确定。

Exercises

I．Form Phrases

最终用户和销售伙伴
end-_____ partners

软件下载
software_____

替代程序
_____program

前置期
_____time

客户服务
_____service

复印成本
_____costs

产品和价格信息
_____information

技术支持
_____ support

网上销售
_____sales

订单递交
order_____

运营成本
_____cost

II．Fill in the blanks and put the sentences into Chinese

1．Cisco's large customers take advantage of immediate and automatic access to Cisco's_____.

2．Enhanced technical support and customer service: With 70%of its technical support and customer service calls handled on-line, Cisco's _____has increased by 200% to 300% per year.

3．Today, Cisco offers nearly a dozen Internet-based applications to both _____and

_____.

4．Customer's _____productivity increased an average of 20%.

5．_____ were reduced, down from 4 to 10 days to only 2 to 3 days, and customer' _____productivity increased an average of 20%.

III．Challenging questions for discussion

1．Describe how Cisco succeeded in selling its products and providing services to its customers on-line.

2．What are the benefits of Cisco's connection on-line to Cisco and its customers?

3．What steps are involved in ordering a Cisco networking product on-line?

Chapter 7 Warehousing



Chapter Outline

Part I Space Arrangement and Warehousing Activities
- Space Requirement
- Typical Straight-thru Flow Design of Warehousing
- Typical Straight-thru Flow Design of Warehousing
- The Main Activities in a Warehouse

Part II Types of Warehousing
- Overview of Warehousing
- Public Warehouses
- Value-added Warehousing

Part III Supplementary Reading: *Cross-Docking*
- Crossdock
- Why Cross-docking is Popular Among Retailers?
- Criteria for Using Cross-docking
- Operations

Part I Space Arrangement and Warehousing Activities

Space Requirements

The first step for warehouse layout is to determine the overall space requirements for all warehouse processes. The space requirements for each process should be computed and summarized to estimate the overall building requirements. An example for space requirements for a warehouse is provided in Table 7-1.

Table 7-1 Warehouse Space Requirements

Process	Floorspace requirement (Sq. Feet)	Notes and Comments
1. Receiving staging	30,000	Assuming 80% utilization
2. Pallet storage	120,000	At peak inventory
3. Case picking	25,000	
4. Broken case picking	15,000	
5. Packing & unitizing	15,000	
6.Customizing	20,000	Assumes 10% growth in value-added service
7.Accumulation & sortation	30,000	
8.Shipping staging	30,000	
9.Cross-docking	15,000	
10.Warehouse offices	15,000	
11.Restrooms	5,000	
Subtotal	320,000	
Interactivity aisle allowance	64,000	@20% of subtotal
Total	384,000	

Space for receiving and shipping is a function of the number of receiving and shipping dock doors and the turnaround time for each dock. A common practice is to allocate enough staging space behind each dock door to accommodate a truckload's worth of material.

Floorspace requirements for pallet storage and retrieval, case picking, and broken case picking should be computed as part of the storage analysis.

Floorspace requirements for packing, unitizing, customizing, accumulation, and sortation shall consider the space needed for each work station, the number of work stations required, and the material handling methods used.

Typical Straight-thru Flow Design of Warehousing

Warehousing activity is an important link between the producer and the customer. To illustrate the activities in a general warehouse, we will first learn its basic layout, which can be classified into four types, according to the activities flow planning: U-shaped, straight-thru, modular-spine, or multistory flow pattern. Fig. 7-1 illustrates an example of straight-thru flow design. It works well for operations in which the peak receiving and shipping times coincide.

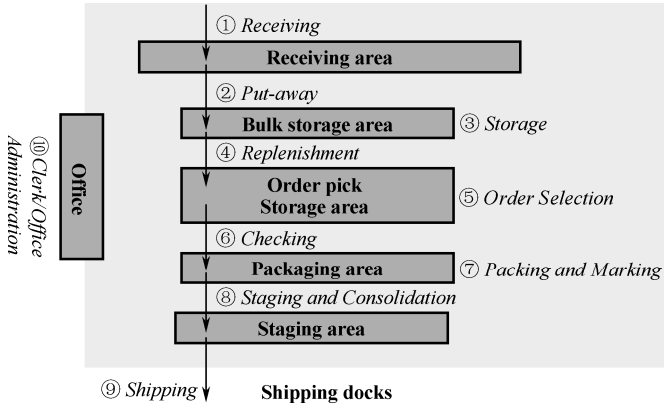


Fig.7-1 Company-operated warehouse activities

Despite the name or role, warehouse operations have a fundamental set of activities in common. The following activities are performed to some degree in all warehousing operations. However, one or more of them may not exist in a given warehouse or are combined with other activities.

The Main Activities in a Warehouse

Merchandise and materials arrive at warehouses in large quantity shipments. The first activity is receiving.

Material receiving

Receiving is usually the unloading of high volume of similar product. It involves physically accepting materials, unloading it from the transportation facilities, verifying quantity and condition of the material, and documenting this information as required. Lift trucks can be used for receiving.

Remove the goods

Put-away means removing the goods from the receiving area, transfer them to a storage area, moving them to a specific location and recording this movement. This movement is mostly handled by a lift truck.

Storage

Storage is the physical containment of merchandise while it is awaiting a demand. The storage method depends on the size and quantity of the items in inventory and the handling characteristics of the product or its container.

Replenishment

Replenishment occurs when material is relocated from storage to a temporary resupply area from which orders are directly filled.

Picking product according to orders

Order Selection is one of the major activities within warehouses. It involves picking the required quantity of specific products for movement to a packing area. For each order, the combination of products must be selected and packaged to meet specific customer order requirements. The typical selection process is coordinated by a warehouse management system.

Check the products selected

Checking means verifying and documenting order selection in terms of product number and quantity.

Product packing and labeling

Packing & **marking** refers to placing one or more items of an order into an appropriate container and labeling that container with customer shipping destination data as well as other handling information that may be required.

Staging & consolidation for shipping

Staging & consolidation means physically moving material from the packing zone to a shipping area based on a prescribed instructions related to a particular outbound vehicle or delivery route. It may involves the sortation of batch picked for individual orders and accumulation of distributed picks when an order has more than one item and the accumulation is not done and the picks are made.

Loading on an outbound vehicle

Shipping involves loading a transportation vehicle with material from the staging area. Firms may use conveyors or lift trucks to move products. Shipment content checking is typically required when product changes ownership. It often include the following tasks:

- Packaging merchandise in appropriate shipping containers;
- Preparing shipping documents, including packing lists, address labels and bills of lading;
- Weighing shipments to determine shipping charges;
- Accumulating orders by outbound carrier;
- Loading trucks (in many cases, this is a carrier's responsibility).

Administration

Clerical/Office administration refers to all of the tasks related with keeping track of items as they move into, through, and out of the warehouse.

Objective of warehousing

The objective of warehouse operation is to efficiently receive inventory, possibly store it until required by the market, assemble it into complete orders, and initiate movement to customer.

New Words and Expressions

warehousing ['wɛəhauziŋ]*n.*	入库；仓储
floorspace	平面空间
unitize ['juːnitaiz]*v.*	单元化
customize ['kʌstəmaiz]*v.*	客户定制
layout ['lei,aut]*n.*	布局；设计
order pick	订单分拣
package ['pækidʒ]*n.*	包装；包装材料
staging [steidʒiŋ] *v.*	分批运输
shipping dock	出货站台
unload ['ʌn'ləud] *v.*	卸下
verify ['verifai] *v.*	查验，验证
lift truck	叉车
identify[ai'dentifai] *v.*	确定，识别
modular ['mɔdjulə] *adj.*	模块的
coincide [,kəuin'said] *v.*	一致，符合
sortation [sɔː'teiʃən]*n.*	分类
accumulation[əkjuːmjʊ'leiʃ(ə)n]*n.*	积聚，堆积物
consolidate[kən'sɔlideit] *v.*	整合，合并，巩固
administration[ədminis'treiʃən]*n.*	管理

Notes

1．…which can be classified into four types, according to the activities flow planning: U-shaped, straight-thru, modular-spine, or multistory flow pattern.

（仓库的布局）可根据仓储活动流程规划分为四类：U 型仓库、直通型仓库、模块型仓库或多层流程仓库。

2．Merchandise and materials arrive at warehouses in large quantity shipments.

商品和物资大批量地运到仓库。

3．It involves physically accepting materials, unloading it from the transportation facilities, verifying quantity and condition of the material, and documenting this information as required.

接收工作涉及接收实物，将实物从运输设施上卸下，查验所到货的数量和质量，按要求将有关信息记载。

4．outbound vehicle or delivery route 外运的运输工具或发运路线

5．piece-by-piece check 逐件检查

6．The objective of warehouse operation is to efficiently receive inventory, possibly store it until required by the market, assemble it into complete orders, and initiate movement to customer.

仓储作业的目标是为了有效率地接收存货，尽可能地将其储存至市场需要之时，组织存货形成履行的订单和开始运输发往客户。

Exercises

I. Vocabulary training

1. **Brainstorming**

Ask the students of the whole class to think of as many words or phrases that associates with warehousing activities.

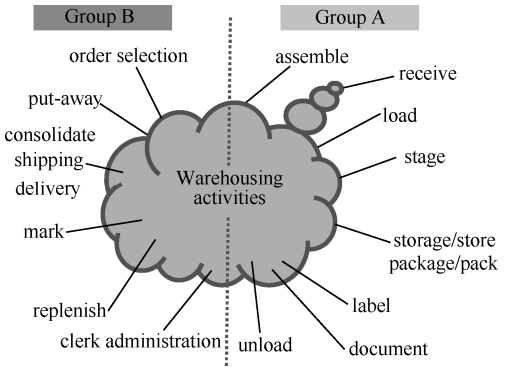


Fig. 7-2 Brainstorming of words of warehousing activities

Activity for vocabulary

◆ Ask the students to think of as many words or phrases that related with warehousing activities. (see Fig. 7-2)

◆ One person should be responsible for noting down everyone's suggestions. This one can be the teacher.

◆ If brainstorming is done as a whole class, ask the student write the class' contributions on the notebook.

2. **Pair work - interpret and write**

Activity planning:

◆ Students work in pairs.

◆ Students A chooses 5 to 10 words from the above words list of warehousing activities，and write down on his own notebook.

◆ Students A interprets or describes the activities which he has written on the notebook to students B who listens and tries to write down the word from the description.

◆ Then, student B turn to interpret and student A listen and write.

II. Fill in the blank and put the sentence into Chinese

1. _____ _____ is an important link between the producer and the customer.

2. Order selection means _____ the required quantity of specific products and packaged to

meet _____order requirement.

3. Put-away means transfer the goods from _____area to_____area.

4. Firms may use_____or_____to move products.

5. _____is typically required when product changes ownerships.

6. Marking means labeling the items with_____data and _____.

7. _____is typically required when product changes ownerships.

III. Phrases translation

仓储操作	运送路线
基本布局	标识
按订单分拣	产品编号
储存区	仓库管理系统
大批量运输	订单要求
办公管理	运输目的地
装运检验	运输工具
升降货车	搬运信息

IV. Put the following passage into English

1．接收通常包括接收物料，从运输设施上卸下，核对数量和状况，记录所要求的有关信息。

2．接收是所有其他仓储活动的准备工作。良好的接收工作有助于简化在库物品的流程，减少工作量、错误、时间和事故的发生。

3．储存方法视库存物品的大小、数量、特征和容器而不同。

4．向外运输时或物品更换所有权时，需要对出库物品进行核查。

V. Put the following passage into Chinese

1. In the classic case, products flow in at receiving, move into storage in the back of the warehouse, and then to shipping, which is located adjacent to receiving on the same side of the building.

2. A U-shaped flow design has some advantages over other flow designs, including: excellent utilization of dock resources because the receiving and shipping processes can share dock doors; facilitating cross-cocking because the receiving and shipping docks are adjacent to one another and may be co-mingled.

3. Modular flow design is well suited for large-scale operations in which individual processes are so large they merit stand-alone and uniquely designed buildings.

4. Multistory layouts are common in Japan and in some parts of Europe, where land is extremely scarce. They are the least desirable of the flow path alternatives because of the material handling difficulties and bottlenecks encountered in moving merchandise between floors.

VI. Topics for group discussion

1. Referring to the information in exercise IV and using the following structure and hints, tell the classification of layout.

(1) Generally speaking, the warehouse layout can be classified into four types, according to the activity flows…

(2) Describe U-shaped warehouse.

(3) Say what you know about straight-thru flow warehouse.

(4) Say what you know about the modular flow warehouse.

(5) Say what you know about the multistory layouts.

2. What activities does warehousing operate? Describe some of them. (The following structure may be used.)

(1) No matter what kind of layout a warehouse adopts, it will have the similar activities including…

(2) Describe some of the main activities as receiving, put-away and order picking.

VII. Writing and self-assessing accuracy

1. Introduction of warehouse layout.

2. Warehouse activities.

Activity planning:

◆ This activity can be done in the class, after the full discussion of exercise VI, when students are fully warmed up and active.

◆ When the students finish writing, ask them to change their writing paper with a partner.

◆ Encourage student to check the accuracy of their partner. When complete, return the paper.

◆ Ask student to evaluate the accuracy of their own work, and identify their own weak areas.

◆ Teacher suggests ways of improving to the students either with the whole class or individually.

Part II　Types of Warehousing

Overview of Warehousing

Different forms of warehouses

Warehousing is an integral part of a logistics system. There are estimated 750,000 warehouse facilities worldwide, including professionally managed warehouses, and company stockrooms, garages and even garden sheds.

Two options of warehousing: public & private warehousing

When a firm decides to store product, it faces two warehousing options: rented facilities, called *public warehousing*, or owned or leased facilities, called *private warehousing*.

Comparing the two options

Firms must examine closely to choose between the two options. For example, the price of a public warehouse is most probably higher because it will be operated at a profit; it may also have selling and advertising cost. However, a firm makes no initial investment in the facilities. For customer service, private warehousing can generally provide higher service levels because of its more specialized facilities and equipment, and its better familiarity with the firm's products, customers and market.

In some instances, innovative public warehouses can provide higher levels of service owning to their expertise and strong competitive drive to serve the customer.

In the following, we will discuss about public warehousing.

Public Warehouses

Types of public warehouses

Public Warehouses. There are many types of public warehouses, including: (1) general merchandise warehouses for manufactured goods, (2) refrigerated storage warehouses, (3) bonded warehouse, (4) special commodity warehouses, and (5) bulk storage warehouses.

Warehouses for general merchandise

General Merchandise Warehouse. The general merchandise warehouse is probably the most common form. It is designed to be used by manufacturers, distributors, and customers for storing almost any kind of product.

Warehouses for refrigerated products

Refrigerated Warehouses. Refrigerated or cold storage warehouses provide a temperature-controlled storage environment. They tend to be used for preserving perishable items such as fruits and vegetables. However, a number of other items (e.g., frozen food products, some pharmaceuticals, photographic paper and film, and furs) require this type of facility.

Warehouses for special commodities

Special Commodity Warehouses. *Special commodity warehouses* are used for particular agricultural products, such as grains, wool, and cotton. Ordinarily each of these warehouses handles one kind of product and offers special services specific to that product.

Warehouses for bonded products

Bonded Warehouses. Some general merchandise or special commodity warehouses are known as bonded warehouses. Goods such as imported tobacco and alcoholic beverages are stored in this type of warehouse, although the government retains control of the goods until they are distributed to the market place. The advantage of the bonded warehouse is that the import duties need not be paid until the merchandise is sold, so

that the importer has the funds on hand to pay these fees.

Warehouses for bulk cargoes

Bulk Storage Warehouses. Bulk storage warehouses provide tank storage of liquids and open or sheltered storage of dry products such as coal, sand, and chemicals.

Value-added Warehousing

Warehousing operations have potential to add new value to customers.

Seven ways of adding value in warehousing

Storage Accumulation. It refers to the use of a warehouse to stockpile and to handle overflow. Such overflow capabilities are needed in two situations: One involves seasonal production and level demand; the other arises from level production and lumpy demand.

Postponement. Postponement means the use of a warehouse as a final step deferment or postponement until a customer places an order for a specific quantity. Here is the opportunity to manufacture long runs of a standard product and store it in large quantities without fear of having too much of anything. It allows you to reduce your inventory volume of finished product while still providing a high level of service.

Order Consolidation. It uses a warehouse to gather product which is to be shipped to a final destination. This type of operation is used to assemble an order of finished products from several different sources.

Hub and Spoke Distribution. In a hub and spoke concept, full truckloads of product are received into the hub DC (the hub where the load is broken down for redistribution) and/or it is crossdocked to the limited line item (smaller spokes) DCs downstream on a daily basis. This type of distribution operation will be a network of large regional or centralized, full-line item DCs that support outlying, limited line item DCs downstream from the hub DC facility.

Product Transformation. Product transformation means either using of a warehouse as a central gathering point for transforming a product to a shelf-ready state in a manufacturing or retail environment or altering inventory to meet customer specifications. This may include such value-added services as light assembly, configuration, packaging and labeling, kitting, or custom unit loading.

Order Assembly. Order assembly refers to the use of a warehouse to fulfill unpredictable order patterns, to accommodate a broad SKU mix and ship same-day orders, as well as to use crossdocks whenever possible. This may also include value-added services as kitting, sequencing, pre-assembly, packaging, unitizing, tagging, labeling, and ticketing.

Product Mixing. Product mixing refers using of a warehouse to combine items in the entire product line for a single manufacturer from product-oriented manufacturing facilities in different locations. This concept allows those customers who wish to order mixed pallet loads, truckloads, or container loads of the entire product line.

New Words and Expressions

integral ['ɪntɪgrəl]*adj.*	完整的，必需的组成部分
facility [fə'sɪlɪtɪ] *n.*	设施，设备，工具
stockroom ['stɔkrʊm]*n.*	储藏室
familiarity [fəˌmɪlɪ'ærɪtɪ] *n.*	熟悉，了解
innovative [['ɪnəʊveɪtɪv] *adj.*	创新的，革新的
perishable ['perɪʃəbl]*adj.*	易腐烂的，易变质的
pharmaceutical [ˌfɑːmə'sjuːtɪkəl] *n.*	药物
customer service	客户服务
competitive drive	竞争驱动力
specialized facilities	特殊设施，专用设施
private warehousing	自用仓库
public warehousing	公共仓库
bulk [bʌlk] *adj.*	大量的，大批的
bulk cargo	大宗散装货物
photographic paper	照相纸
temperature-controlled	温控的
shelter ['ʃeltə] *n.*	掩蔽处，遮蔽处
postponement[pə'spənmənt] *n.*	延期，推迟；延期的事
hub and spoke	轴辐式
assembly[ə'sembl] *v. n.*	装配，集会；［机］装配，供装配的零件

Notes

1．…including professionally managed warehouses, and company stockrooms, garages and even garden sheds.

……包括专业管理的仓库和公司的储藏室、车库甚至庭院货棚。

2．Two warehousing options: rented facilities, called *public warehousing*, or owned or leased facilities, called *private warehousing*.

两种仓储选择：租用的仓储设施，叫做公共仓储；自有的或租赁的仓储设备，叫做（企业）自用仓储。

Public warehouse　公共仓库：对大众提供储存货品服务并收取费用的仓库，并不一定为公众所有，也可能为私有仓库。

Private warehouse （企业）自用仓库：公司拥有自己的仓库或长期租赁他人仓库，并只存放本公司自己的物品，根据本身的需求可装设特定的装卸或储存设备。亦称为公司自家仓库。

3．general merchandise warehouse　普通商品仓库

4．bonded warehouses　保税仓库

Exercises

I．Phrases translation

仓储设施

warehouse fa_____

公共仓库

pu_____ warehousing

自用仓库

pr_____ warehousing

广告成本

ad_____ cost

首笔投资

initial in_____

客户服务

c____ service

服务水平

ser____ level

竞争动力

co_____ drive

制造商

manu_____

经销商

dis_____

温控仓库

_____-controlled warehouse

进口税

imported du_____

罐装储存

ta_____ storage

易腐物品

pe_____ products

农产品

ag_____ products

大宗散装存储产品

bu_____ storage products

普通商品仓库

ge_____ commodity warehouse

冷藏仓库

re_____warehouse

特种商品仓库

sp_____ commodity warehouse

保税仓库

bo_____ warehouse

II．Fill in the blanks and put the sentences into Chinese

1．The two types of warehouses according to the ownership are_____warehousing and_____ warehousing.

2．Comparing the two types warehousing, the price of _____ tends to be higher, and generally speaking, _____ can provide better customer service.

3．There are many types of public warehouses, including: general merchandise warehouses; _____; bonded warehouse, _____, and_____.

4．_____ is designed to be used for storing almost any kind of product.

5．Goods such as imported tobacco and alcoholic beverages are often stored in_____ warehouse with its imported duties unpaid until they are distributed to the marketplaces.

6. _____ provides tank storage of liquids and open or sheltered storage of dry products such as coal, sand, and chemicals.

7. Perishable products such as fruits and vegetables shall be preserved in_____warehouses.

8. There are seven ways of warehousing for adding value to customers: _____, _____, _____, _____, _____, _____, _____.

III. Challenging questions for discussion

1. Compare the advantages and disadvantages between public and private warehouses.

2. What kinds of products need temperature-controlled warehouse?

3. What's the advantage of bonded warehouses?

4. What kinds of commodities are stored in bulk storage warehouses?

5. Discuss anyone of the seven ways of warehousing for adding value to customers, and explain with a case if possible.

Part III Supplementary Reading

Cross-docking

Crossdock

Crossdocks are high speed warehouses.

If an arriving item has already been requested by a customer, there is no need to store it as anticipation inventory; instead, the item can move directly from receiving to shipping, without intermediate storage and retrieval. Thus the item can move much more quickly through the facility and the most costly part of warehouse labor can be avoided.

In a high-volume crossdock the turnover times may be measured in hours. To support this velocity of movement, a crossdock may be nothing more than a slab of concrete with a roof and walls punctuated with doors for trailers. Freight is pulled off arriving trailers, sorted and loaded onto departing trailers without intermediate storage.

There is little or no storage provided in a crossdock because items do not stay long enough; but there is generally a lot of material-handling equipment, such as forklifts and pallet jacks, to move freight. Labor is frequently the main cost and it is devoted to unloading incoming trailers, moving the freight to the appropriate outgoing trailers, and loading. Consequently, the issues within a crossdock are those of material-handling and product flow rather than location and retrieval.(Fig. 7-3).





Fig.7-3 Crossdocks built in various types

Why Cross-docking is Popular Among Retailers?

Because of its impact on costs and customer service, cross-docking is becoming popular, especially among retailers. For example, approximately 75 percent of food distribution involves the cross-docking of products from supplier to retail food stores. The biggest impact of a crossdock is on reducing transportation costs. This can be achieved by consolidating multiple shipments so that full truck loads can be sent.

The Home Depot is a major retailer and the largest user of Less-than-Truck-Load (LTL) shipping in North America. Nowadays, LTL costs about twice the cost of Truck Load (TL) shipping, so there is a strong incentive to fill trailers. The Home Depot has begun doing this by having vendors ship full trailers to its crossdock. (The trailers are full because they hold product for many stores.) At the crossdock the product is sorted out for individual stores and consolidated with product from other vendors bound for the same store. The result is that each store has enough freight or a few close neighbors generate a full truck load from the crossdock. The result can be considerable savings.

Additional benefits include less inventory (because all product flows right through) and less labor (because product does not have to be put away and later retrieved).

Criteria for Using Cross-docking

Cross-docking should be considered as an option by firms meeting two or more of the following criteria:

- Inventory destination is known when received.
- Customer is ready to receive inventory immediately.
- Shipment to fewer than 200 locations daily.
- Daily throughput exceeds 2,000 cartons.
- More than 70 percent of the inventory is conveyable.

- Large quantities of individual items received by firm.
- Inventory arrives at firm's docks prelabeled.
- Some inventory is time sensitive.
- Firm's distribution center is near capacity.
- Some of the inventory is prepriced.

Operations

Most crossdocking freight terminals are laid out as long, narrow warehouses with doors around the perimeter. Fig.7-4 illustrates a typical terminal, where the small shaded rectangles represent incoming trailers with freight to be unloaded, and small clear rectangles represent (empty) outgoing trailers. Terminals range in size from fewer than 10 doors to more than 500 doors. Inside a terminal, a variety of material handling methods is used to transport freight. Forklifts and palletjacks carry heavy or bulky items, and carts transport smaller items. In addition, large terminals may have draglines, which circulate carts around the inside perimeter of the dock.

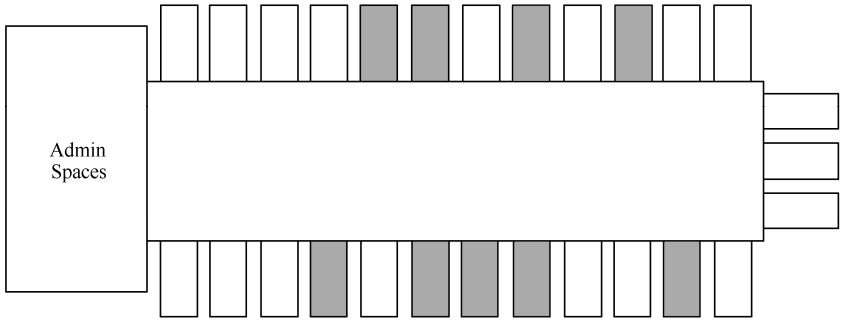


Fig.7-4 Typical terminal for crossdocking

There are two types of doors in a terminal: receiving, or strip, doors, where full trailers are parked to be unloaded, and shipping, or stack, doors, where empty trailers are put to collect freight for specific destinations. Once established, the designations of these doors do not change, although the trailers parked at them will. A shipping door always receives freight for the same destination.

A receiving door may be occupied by any incoming trailer, regardless of its origin or contents. Arriving trucks may deliver their trailers directly to an unoccupied receiving door; or, if none is available, they may place them in a queue. After the trailer is backed into a receiving door, a worker unloads the freight. After unloading items of a shipment onto a cart, the worker walks to the destination trailer and loads the items into that trailer; or he places the cart on the dragline, if the terminal is so equipped. To handle pallet loads, the worker uses a palletjack, or hails a forklift driver, or finds a forklift and delivers the load himself, if union rules permit.

After a trailer has been completely stripped, a driver replaces it with another incoming trailer from the queue of trailers waiting to be stripped. After an outgoing trailer has been filled, a driver replaces it with an empty trailer to be filled with freight for the same destination.

New Words and Expressions

cross-docking [dɔkiŋ]	直接换装，越库
crossdock	直接换装库，交叉运作库
retrieval[əri'tri:vəl] *v.*	再取出来
turnover ['tə:n,əuvə] *n.*	周转量
velocity [vi'lɔsiti] *n.*	速度
a slab of concrete	水泥板
punctuate ['pʌŋktjueit] *v.*	（不时地）分隔开
trailer ['treilə] *n.*	拖车
freight [freit] *n.*	货物
palletjack ['pælitdʒæk] *n.*	托盘千斤顶
approximately [əprɔksi'mətli] *adv.*	近似地，大约
retailer [ri:'teilə] *n.*	零售商
criteria [krai'tiəriə] *n.*	标准，准则
throughput ['θru:put] *n.*	产量，容量，吞吐量
prelabel ['pri:'leibl] *v.*	预贴标签
preprice ['pri:'prais] *v.*	预先定价
LTL (less-than-truck-load)	零担货
TL (truck-load)	整车货
incentive [in'sentiv] *n. adj.*	动机，激励的
perimeter [pə'rimitə] *n.*	周界
rectangle ['rektæŋgl] *n.*	长方形
queue [kju:] *n. v.*	队列，排队
cart [kɑ:t] *n.*	手推机，大车
dragline ['dræglain] *n.*	牵引索
hail [heil] *v.*	招呼
union (of labor)	工会
strip [strip] *v.*	剥去，卸载

Notes

1．cross-docking 直接换装，又叫越库、接驳式或通过型物流，指货物从进货区进货后，直接到出货区至配送货车上出货，没有入库、储存、拣货等作业。

2．…the item can move directly from receiving to shipping, without intermediate storage and retrieval.

产品可以直接从收货区移到发货区，不需要中间的储存阶段和取货阶段。

3．In a high-volume crossdock the turnover times may be measured in hours. To support this velocity of movement, a crossdock may be nothing more than a slab of concrete with a roof and walls punctuated with doors for trailers. Freight is pulled off arriving trailers, sorted and loaded

onto departing trailers without intermediate storage.

在大容量的直接换装库，周转次数以小时计。为了提高周转速度，直接换装库可以仅是供拖车作业的水泥地，加上屋顶和墙。从到达的拖车上卸下货物，分类并装载到出货拖车上，无需中间储存。

4．The Home Depot is a major retailer and the largest user of Less-than-Truck-Load (LTL) shipping in North America.

Home Depot 是主要的零售商，也是北美拼车运输最大的客户。

5．Cross-docking should be considered as an option by firms meeting two or more of the following criteria.

如果企业满足下列准则中的两个或两个以上时，就可考虑选择采用直接换装作业。

6．At the crossdock, the product is sorted out for individual stores and consolidated with product from other vendors bound for the same store.

在交叉运作仓库，产品按商店分拣开来，并与来自不同供应商、运往同一家商店的产品整合在一起。

7．Fig.7-5 illustrates a typical terminal, where the small shaded rectangles represent incoming trailers with freight to be unloaded, and small clear rectangles represent (empty) outgoing trailers.

图 7-5 显示了典型的（交叉）仓库，图中小的阴影长方形代表进来的拖车，带着需要卸下的货物，小的空白的长方形代表（空的）出去的拖车。

Exercises

Questions for discussion

1．What is cross-docking?

2．What are the two fundamental warehouse activities removed by crossdocks, and what enables crossdocks to omit these activities?

3．What are the advantages of cross-docking? And why?

4．How does retailer use cross-docking?

5．When should cross-docking be considered?

6．Where are the most convenient doors in a rectangular crossdock?

Chapter 8 Material Handling



Chapter Outline

Part I Material Handling System

- Introduction of Material Handling System
- Types of Material Handling Systems
- Mechanized Material Handling Systems
- Semi-automated Material Handling Systems
- Automated Material Handling Systems
- Automated Storage/Retrieval Systems

Part II Mechanized Material Handling Equipment

- Introduction
- Lift Trucks
- Walkie-rider Pallet Trucks
- Towlines
- Tow Tractor with Trailers
- Conveyors
- Carousels

Part III Supplementary Reading: *Safety in Material Handling*

- What should Workers Know before Handling Material
- Potential Hazards for Workers
- Precautions should be Taken When Moving Materials Manually
- Precautions should be Taken When Moving Materials Mechanically
- Safety Measures Regarding Conveyors
- Safety Measures Regarding Conveyors
- Safety Precautions for Operating Powered Industrial Trucks

Part I Material Handling Systems

Introduction of Material Handling Systems

Material handling systems are a large investment

Material handling equipments and systems often represent a major capital investment for an organization. Like the decisions related to the number, size, and location of warehouses, material handling can affect many aspects of the firm's operation.

The Material Handling Institute, an industry trade association for manufacturers of material handling equipments and systems, has estimated that:

The hardware and software used to move, store, control, contain, and unitize materials in factories and warehouses exceed $50 billion annually.

Much of the growth in size and variety of the market is fueled by major changes in the requirements of warehouse and distribution operations (e.g., reduced order cycle times, reduced inventory levels, reduced order sizes, SKU proliferation).

Types of Material Handling Systems

Material handling system can be classified as mechanized, semi-automated, automated, and information-directed.

Comparison of four material handling systems

A combination of labor and handling equipment is utilized in mechanized systems to facilitate receiving, processing, and/or shipping. Generally, labor constitutes a high percentage of overall cost in mechanized handling.

Automated systems, in contrast, attempt to minimize labor as much as possible by substituting equipment capital investment.

When a combination of mechanical and automated systems is used to handle material，the system is referred to as semi-automated.

An information-directed system applies computerization to sequence mechanized handling equipment and direct work effort. Mechanized handling systems are most common, but the use of semi-automated and automated systems is increasing.

The main drawback to automated handling is lack of flexibility. One factor contributing to low logistical productivity is that information- directed handling has not yet to achieve its full potential. This situation is predicted to be dramatically changed during the first decade of the 21st century.

Mechanized Material Handling Systems

Mechanized system is traditional and will continue to be in use

Mechanized material handling equipment has been the mainstay of the traditional warehousing and will likely continue to be important even with the move toward automated warehousing. Mechanized material handling systems employ a wide range of handling equipment. Such equipment can be categorized according to the functions performed, that is, storage and order picking, transportation and sorting, and shipping.

Semi-automated Material Handling Systems

Equipments in semi-automated systems

Mechanized handling is often supplemented by semiautomatic equipment. Typical equipments utilized in semi-automated handling systems includes automated guided vehicle systems(AGVS), computerized sortation, robotics and various forms of live racks.

Automated Material Handling Systems

For several decades the concept of automated handling has offered great potential. Initial automated handling efforts focused on master carton order selection systems. Recently, emphasis has shifted to automated high-rise storage and retrieval systems.

Advantages of an automated system

The appeal of automation is that it substitutes capital equipment for labor. In addition to requiring less direct labor, an automated system operates faster and more accurately than its mechanized counterpart. Table 8-1 shows the benefits of automated material handling systems.

Table 8-1 Benefits of automated material handling systems

Benefit	Proportion of respondents that "agree" or "strongly agree"
Labor cost reduction	98.8%
Ability to increase output rate	95.2%
Improvement in consistency of service	92.1%
Reduction in material handling	92.1%
Increased accuracy level	89.5%
Service availability	87.0%
Improvement in speed of service	81.0%

Disadvantages of an automated system

However, automated systems are not without disadvantages. Its shortcomings are the high capital investment, maintenance costs, inflexibility and user training.

Automated Storage/Retrieval Systems

An automated storage/retrieval system for pallets is commonly referred to as a unit load AS/RS. It is defined by the AS/RS product section of the Material Handling Institute as a storage system that uses fixed-path storage and retrieval (S/R) machines running on one or more rails between fixed arrays of storage racks.

Single command operation & dual command operation

A typical AS/RS operation is called a *single command* (SC) operation, involving the S/R machines picking up a load at the front of the system, transporting the load to an empty location, deposing the load in the empty location, and returning empty to the *input/output* (I/O) point. A *dual command* (DC) operation involves the S/R machine picking up a load at the I/O point, traveling loaded to an empty location, depositing the load, traveling empty to the I/O point, and depositing the load. The key idea is that in a dual command, the two operations, a storage and a retrieval, are accomplished between successive visits to the I/O point.

Information-directed material handling System.

Characteristic of information-directed system

The concept of information-directed is appealing because it combines the control typical of automated handling with the flexibility of mechanized systems. Information-directed systems use mechanized handling controlled by information technology. Two common examples of information-directed material handling systems are RF-controlled equipment and light-directed operations.

New Words and Expressions

association [əˌsəusiˈeiʃən] *n.* 协会
proliferation [prəuˌlifəˈreiʃən] *n.* 增殖，扩散
automate [ˈɔːtəmeit] *v.* 使自动化，自动操作
combination [ˌkɔmbiˈneiʃən] *n.* 组合，合并
sequence [ˈsiːkwəns] *n.* 次序，顺序
flexibility [ˌfleksəˈbiliti] *n.* 灵活性
vehicle [ˈviːikl] *n.* 交通工具，车辆
sortation [sɔːˈteiʃən] *n.* 分类
robotics [rəuˈbɔtiks] *n.* 机器人学，机器人技术
initial [iˈniʃəl] *adj.* 最初的，初始的
retrieval [riˈtriːvəl] *n.* 检索，取回
pallet [ˈpælit] *n.* 托盘，货板

Notes

1．SKU　stock-keeping unit 的简写。这是一种采用条形码跟踪库存的方法，通常用于计算机控制的自动化系统的库存再订货或补充。

2．One factor contributing to low logistical productivity is that information-directed handling has yet to achieve its full potential.

造成物流效率低下的一个因素是信息导向处理系统还没有发挥全部潜能。

3．Much of the growth in size and variety of the market is fueled by major changes in the requirements of warehouse and distribution operations.

仓储和配送作业的重要变化极大地刺激了市场的多样性和其规模的增长。

4．Mechanized material handling equipment has been the mainstay of the traditional warehouse and will likely continue to be important even with the move toward automated warehousing.

机械化物资操作系统一直是传统仓储的支柱，且仍将可能继续发挥其重要作用，即使仓储业向自动化发展变化。

5．master carton　马斯特箱。为提高搬运效率，把各种罐状、瓶状或盒状的产品组合进更大的单元，称作马斯特箱。马斯特组合最常见的单元是托盘，薄衬纸，以及各种类型的集装箱。

6．In addition to requiring less direct labor, an automated system operates faster and more accurately than its mechanized counterpart.

除了需要较少的直接劳力外，与机械化系统相比，自动化系统还可以更快、更精确地作业。

7．Two common examples of information-directed material handling systems are RF-controlled equipment and light-directed operations.

两种常见的信息导向物资操作系统是射频控制设备和光导向操作系统。

Exercises

I．Fill in the blank and put the sentence into Chinese

1．A combination of _____ and ____equipment is utilized in mechanized systems to facilitate receiving, processing, and/or shipping.

2. Information-directed systems apply _____to sequence mechanized handling equipment and direct work effort.

3．_____equipment has been the mainstay of the traditional warehouse and will likely continue to be important even with the move toward _____warehousing.

4．Initial automated handling efforts focused on master carton _____.

5．Information-directed systems use mechanized handling controlled by_____.

II．Phrases translation

物资操作系统　　机械化操作系统

自动化操作系统	信息导向操作系统
存储和订单处理设备	运输和分类设备
出货设备	自动导向车辆系统
计算机分类	活动货架
高层自动化存取系统	射频波控制设备
光导向操作	订货拣选系统
自动存取系统	进出货端口

III. Discuss the advantages and disadvantages of different types of material handling systems

Types of MHS	Advantage	Disadvantage
Mechanized material handling		
Semi-automatic		
Automated		
Information-directed		

IV. Challenging questions for discussion

1. What are the classifications of material handling systems?
2. Illustrate the differences of the four systems of material handling.
3. How does material handling affect the firm's operations?
4. Discuss the advantages and disadvantages of the automated material handling system.
5. What is the appeal of the information-directed material handling systems?
6. Please draw a picture to indicate the operations of a single command and a dual command of an automated storage/retrieval system.

Part II Mechanized Material Handling Equipment

Introduction

The primary mission of material handling equipment is to facilitate merchandise flow in an orderly and efficient manner from manufacturer to point of sale. In this section the focus of discussion is put on the mechanized material handling equipment.

The following equipment is commonplace in manual warehousing.

Lift Trucks

Function of lift trucks

Lift trucks, also called forklifts,can move loads of master cartons both horizontally and vertically but are not limited to unit load handling. Boxes may also be transported depending upon the nature of the product.

Types of lift trucks

Many types of lift trucks are available. High-stacking trucks are capable of up to 40 feet of vertical movement. Palletless side-clamp versions are available for handling bulky product without pallets. Other lift truck variations are available for narrow aisle and side-loading operations. Particular attention to narrow-aisle lift trucks has increased in recent years, as warehouses seek to increase rack density and overall storage capacity.

Disadvantage of lift trucks

The lift truck is not economical for long-distance horizontal movement because of the high ratio of labor per unit of transfer; it is most effectively utilized in shipping and receiving and placing merchandise in high cube storage.

Walkie-rider Pallet Trucks

Characteristic and application

Walkie-rider pallet trucks provide a low-cost, effective method of general material handling utility. Typical applications include loading and unloading of transportation equipment, order selection and accumulation, and shuttling loads over longer transportation distances throughout the warehouse. Walkie-rider pallet trucks are widely used in grocery warehouse.

Towlines

Advantage and application

Towlines consist of either in-floor or overhead-mounted cable or drag devices. They are utilized to provide continuous power to four-wheel trailers. The main advantage of a towline is continuous movement. However, such handling devices have far less flexibility than lift trucks. The most common application of towlines is for order selection. Order selectors place merchandise on four-wheel trailers that are then towed to the shipping dock. A number of automated decoupling devices are available to route trailers from the main towline to the shipping docks.

Tow Tractor with Trailers

Application of tow tractor with trailers

A tow tractor with trailer consists of a driver-guided power unit towing a number of individual four-wheel trailers that hold several unitized loads. The typical size of the trailers is 4*8 feet. The tow tractor with trailer, like the towline, is used to facilitate order selection. The main advantage of a tow tractor with trailers is flexibility. It is not as economical as the towline because it requires more labor.

Conveyors

Application and classification

Conveyors are used widely in shipping and receiving operations and form the basic handling device for a number of order selection systems. Conveyors are classified according to power, gravity, and roller or belt movement. In power systems, the conveyor is powered by a drive chain from either above or below. Considerable conveyor flexibility is offered in such power configuration installations. Gravity and roller or belt systems permit the basic installation to be rearranged with minimum difficulty. Portable gravity-style roller conveyors are often used for loading and unloading and, in some cases, are transported on over-the-road trailers to assist in unloading vehicles. Conveyors are effective in that only the product is moved, eliminating the need for a movement unit to return.

Carousels

Application in order selection

A carousel operates on a different concept than most other mechanized handling equipment. Rather than requiring the order selector to go to the inventory storage location, the carousel moves inventory to the order selector. A carousel consists of a series of bins mounted on an oval track or rack. There may be multiple track levels, allowing for very high-density carousel storage. The entire carousel rotates, moving the selection bin to a stationary operator. The typical carousel application is the selection of packages in pack, repack, and service parts.

The rationale behind carousel systems is to shrink order selection labor requirements by reducing walking length and time. Carousels, particularly modern stackable systems, also significantly reduce storage space requirements. Some carousel systems also utilize computer-generated pick lists and computer-directed carousel rotation to further increase selection productivity. These systems are referred to as paperless picking because no paperwork exists to slow down employee efforts.

Varieties of carousel system

A variation of the carousel system is movable racks. Such racks move horizontally to eliminate the permanent aisle between the racks. This system, often used in libraries, provides more storage density but reduces picking efficiency since the racks must be moved to access specific products.

The mechanized material handling equipment discussed is representative of a wide range of alternatives. Most systems combine different handling

devices. For example, lift trucks may be used for vertical movements while tow tractor with trailers and walkie-rider pallet trucks are the primary methods of horizontal transfer.

New Words and Expressions

facilitate [fə'siliteit] *v.*	推动，使便利
lift truck	叉车，铲车
unit load	单元负载
aisle [ail] *n.*	走廊，过道
walkie-rider pallet truck	步行码垛车
application [ˌæpli'keiʃən] *n.*	应用
accumulation [əkju:mjʊ'leiʃ(ə)n] *n.*	堆积，累积
towline ['təʊlain] *n.*	拖缆
decoupling [di'kʌpliŋ] *n.*	退耦，解耦
tow tractor with trailers	带挂车的牵引车
conveyor [kʌn'veiə(r)] *n.*	传送带，输送机
shipping and receiving operation	发货和收货操作
configuration [kənˌfigju'reiʃən] *n.*	构造，结构，配置，外形
carousel [ˌkærə'zel] *n.*	旋转式传送带
bin [bin] *n.*	储料箱
oval ['əuvəl] *adj.*	卵形的，椭圆的
multiple ['mʌltipl] *adj. v.*	多样的，多重的；成倍增加
rotate [rəu'teit] *v.*	（使）旋转
stationary ['steiʃ(ə)nəri] *adj.*	不动的，固定的
rationale [ˌræʃə'nɑ:li] *n.*	基本原理
stackable ['stækəbl] *adj.*	可叠起堆放的

Notes

1．Lift trucks-also called forklifts-can move loads of master cartons both horizontally and vertically but are not limited to unit load handling.

叉车，又称铲车，可水平和垂直地搬移主箱，但不限于对单元负荷的操作。

2．Particular attention to narrow-aisle lift trucks has increased in recent years, as warehouses seek to increase rack density and overall storage capacity.

因为仓库寻求提高堆垛密度和总体储存容量，近年来窄过道叉车更加受到重视。

3．Towlines consist of either in-floor or overhead-mounted cable or drag devices.

拖缆由安装在地面上或顶部的电缆或拖拉设备组成。

4．A number of automated decoupling devices are available to route trailers from the main towline to the shipping docks.

许多自动化的退耦装置可用于将拖车从主拖缆传送到出运站点。

5．A tow tractor with trailer consists of a driver-guided power unit towing a number of individual four-wheel trailers that hold several unitized loads.

带挂车的曳引车是由司机操纵的有动力的车头拖着多个单体的四轮挂车所组成，每个挂车装载着几个单元化的负荷物。

6．The rationale behind carousel systems is to shrink order selection labor requirements by reducing walking length and time.

旋转输送带系统的基本原理是通过减少步行的距离和时间以降低对订单拣货劳力的需求。

Exercises

I．Fill in the blank and put the sentence into Chinese

1．Lift trucks, also called _____, can move loads of master cartons both and_____.

2．A tow tractor with trailer consists of a driver-guided power unit towing a number of individual _____that hold several unitized loads.

3．Conveyors are used widely in _____and _____operations and form the basic handling device for a number of _____systems.

4．Lift trucks may be used for _____movements while tow tractor with trailers and walkie - rider pallet trucks are the primary methods of _____transfer.

5．A carousel consists of a series of _____ mounted on an oval_____.

6．The typical carousel application is the _____in pack, _____, and service parts.

II．Phrases Translation

叉车	步行码垛车
拖缆	旋转式输送带
单元负载	动力结构装置
高垛叉车	库存存储位置
出运货物和收货入库作业	高密度旋转储存
订单拣货	

III．Challenging questions for discussion

1．Discuss the types of lift trucks.

2．What is the application of walkie-rider pallet truck?

3．Why is carousel a different concept than most other mechanized handling equipment?

4．What is the advantage of the carousel?

IV. Chese game

7. Have a break because your lift truck is not economical for long distance movement	6. How high can a high-stacking truck reach?	5. Fail use the right suitable equipment, sing a song	4. Where is a carousel most probably used?
8. Two typical applications of Walkie-rider pallet truck			3. Describe a carousel
9. The advantages of Walkie-rider pallet trucks			2. When is lift truck mostly effectively used?
10. It is the right choice to use Walkie-rider pallet trucks in grocery, two steps forward to the victory!	11. the main advantage of towline	Victory!	1. the advantage of a tow tractor with trailer

Part III Supplementary Reading

Safety in Material Handling

Handling and storing materials involve operations such as lifting up tons of steel with a crane; driving a truck loaded with concrete blocks; carrying bags or materials manually; and stacking pallets or other materials such as drums, barrels, and lumber.

The efficient handling and storing of materials are very important to industry. Unfortunately, the improper handling and storing of materials often result in costly injuries.

To reduce the number of accidents associated with workplace equipment, workers must be trained in the proper use of the equipment they operate, including safely and effectively use equipments such as powered industrial trucks, conveyors, cranes and slings.

What should Workers Know before Handling Materials?



Fig.8-1 Handling material with lift truck

Applying general safety principles—such as proper work practices, equipment, and controls—can help reduce workplace accidents involving the handling materials. Whether moving materials manually or mechanically, workers should know and understand the potential hazards associated with the task at hand and how to control their workplaces to minimize the danger.

Because numerous injuries can result from improperly handling and storing materials, workers should also be aware of accidents that may result from the unsafe or improper handling of equipment and from improper work practices. In addition, workers should be able to recognize the methods for eliminating, or minimizing, the occurrence of such accidents.

Workers should examine their workplaces to detect any unsafe or unhealthful conditions, practices, or equipment and take corrective action(Fig.8-1).

Potential Hazards for Workers

Workers frequently mention the weight and bulkiness of objects that they lift as major factors of their injuries. In 1999, for example, more than 420,000 workplace accidents resulted in back injuries. Bending, followed by twisting and turning, were the more commonly mentioned movements that caused back injuries.

Other hazards include falling objects, improperly stacked materials, and various types of equipment.

Precautions should be Taken When Moving Materials Manually

When moving materials manually, workers should attach handles or holders to loads. In addition, workers should always wear appropriate personal protective equipment and use proper lifting techniques. To prevent injury from oversize loads, workers should seek help in the following:

- When a load is so bulky that workers cannot properly grasp or lift it,
- When workers cannot see around or over a load, or
- When employees cannot safely handle a load.

Precautions should be Taken When Moving Materials Mechanically

Using mechanical equipment to move and store materials increases the potential of injuries. Workers must be aware of safe equipment operating techniques. Employees should avoid overloading equipment when moving materials mechanically by letting the weight, size, and shape of the material being moved dictate the type of equipment used. All material handling equipment has rated capacities that determine the maximum weight the equipment can safely handle and the conditions under which it can handle that weight. Workers must ensure that the equipment capacity is displayed on each piece of equipment and is not exceeded except for load testing.

Although workers may be knowledgeable about powered equipment, they should take precautions when stacking and storing material. When picking up items with a powered industrial truck, workers must do the

following:

- Center the load on the forks as close to the mast as possible,
- Avoid overloading a lift truck,
- Adjust the load to the lowest position when traveling,
- Follow the truck manufacturer's operational requirements, and
- Pile and cross-tier all stacked loads correctly when possible.

Safety Measures Regarding Conveyors

When using conveyors, workers may get their hands caught, be struck by material falling off the conveyor, or may get caught in the conveyor and drawn into the conveyor path as a result. To prevent or reduce the severity of an injury, following precautions must be taken to protect workers:

- Install an emergency button or pull cord designed to stop the conveyor at the work station.
- Design the emergency stop switch so that it must be reset before the conveyor can be restarted.
- Prohibit workers from riding on a materials-handling conveyor.
- Provide guards where conveyors pass over work areas or aisles to keep workers from being struck by falling material.

Safety Measures Regarding Cranes

Employers must permit only thoroughly trained and competent workers to operate cranes. Operators should know what they are lifting and what it weighs. For example, the rated capacity of mobile cranes varies with the length of the boom and the boom radius. When a crane has a telescoping boom, a load may be safe to lift at a short boom length or a short boom radius, but may overload the crane when the boom is extended and the radius increases.

To reduce the severity of an injury, the following precautions must be taken:

- Equip all cranes that have adjustable booms with boom angle indicators.
- Provide cranes with telescoping booms with some means to determine boom lengths unless the load rating is independent of the boom length.
- Require workers to always check the crane's load chart to ensure that the crane will not be overloaded by operating conditions.

- Instruct workers to plan lifts before starting them to ensure that they are safe.
- Take additional precautions and exercise extra care when operating around power lines.
- Direct workers to always keep hoisting chains and ropes free of kinks or twists and never wrapped around a load.
- Train workers to attach loads to the load hook by slings, fixtures, and other devices that have the capacity to support the load on the hook.

Safety Precautions for Operating Powered Industrial Trucks

Workers who handle and store materials often use fork trucks, platform lift trucks, motorized hand trucks, and other specialized industrial trucks powered by electrical motors, must be aware of the safety requirements pertaining the design, maintenance, and use of these trucks.

- Fit high-lift rider trucks with an overhead guard if permitted by operating conditions.
- Locate battery-charging installations in designated areas.
- Do not place arms and legs between the mast or outside the running lines of the truck.
- Set brakes and put other adequate protection in place to prevent movement of trucks, trailers, or railroad cars when using powered industrial trucks to load or unload materials onto them.
- Provide sufficient headroom under overhead installations, lights, pipes, and sprinkler systems.
- Handle only stable or safely arranged loads.
- Disconnect batteries before repairing electrical systems on trucks.
- Ensure that replacement parts on industrial trucks are equivalent to the original ones.

New Words and Expressions

stack pallet	堆叠托盘
drum [drʌm] *n.*	鼓形圆桶
barrel ['bærəl] *n.*	大桶，一桶的量，（液量单位）桶
precaution [pri'kɔ:ʃən] *n.*	防范，预防
costly	损失很大
hazard ['hæzəd] *n.*	伤害

powered industrial truck	工业用机动卡车
bulkiness ['bʌlkinis] *n.*	体积大，庞大
sling [sliŋ] *n.*	吊索，吊货网，吊钩
cross-tier	交叉层
severity [si'veriti] *n.*	严重性
crane's load chart	起重机负荷表
mast [mɑ:st] *n.*	柱杆，桅杆
boom radius ['reidjəs]	吊臂幅度

Notes

1．To reduce the number of accidents associated with workplace equipment, workers must be trained in the proper use of the equipment they operate, including safely and effectively use equipments such as powered industrial trucks, conveyors, cranes and slings.

为了减少与工场设备相关的事故次数，必须培训工人们正确使用他们所操作的设备，包括安全有效地使用工业用机动卡车等设备。

2．Bending, followed by twisting and turning, were the more commonly mentioned movements that caused back injuries.

弯腰，接着扭腰、转身都是经常提到的造成背部受伤的动作。

3．When moving materials manually, workers should attach handles or holders to loads.

当人工搬运物料时，工人应系上把手或固定器装载物品。

4．Design the emergency stop switch so that it must be reset before the conveyor can be restarted.

设计应急终止开关，这样传送带重新开启前必须重新设置。

5．Do not place arms and legs between the mast or outside the running lines of the truck.

不要把手和腿放在柱杆之间或车辆的运行线外。

Exercises

Challenging questions for discussion

1．Explain the potential hazards for workers.
2．What precautions should the workers take when moving materials manually?
3．What precautions should be taken when moving materials mechanically?
4．Explain the safety measures regarding conveyors.
5．What safety measures should workers take when operating cranes?
6．What is the safety precaution for operating powered industrial trucks?

Chapter 9 Packaging



Chapter Outline

Part I Packaging Perspective

- Overview of Packaging
- Types of Packaging
- Functions of Packaging

Part II Packaging Design

- Overview of Package Design
- Factors Affecting Good Packaging Design
- Saving Money through Efficient and Effective Packaging
- Two Issues for Package Design

Part III Supplementary Reading：*Packaging Materials*

- Introduction of Packaging Materials
- Traditional Materials
- New Emerging Packaging
- Film-based Packaging
- Blanket-wrapping
- Returnable Containers
- Intermediate Bulk Containers
- Returnable Containers
- Plastic Pallets
- Refrigerated Containers

Part I Packaging Perspective

Overview of Packaging

Packaging is highly appreciated now

Packaging is an important concern for warehousing and materials handling, one that receiving increased attention around the world. For example, under China's previous planned economy, Shanghai's production sector placed major emphasis on the quality of products and paid little attention to packaging. Shanghai commodities on both the domestic and world markets were often said to display "first-class quality, second-class packaging and third-class pricing." Shanghai lagged far behind developed countries and other coastal areas of China in terms of packaged goods. Over the past years, Shanghai has increased the investment for its packaging industry in order to ensure that its packaged products meet the demands of consumers for damage-free goods. Manufacturers have come to realize that the improved packaging of commodities can significantly increase the added value of products.

Packaging story of Shanghai product

Packaging is closely tied to warehouse efficiency and effectiveness. The best package increases service, decreases cost, and improves handling. Good packaging can have a positive impact on layout, design, and overall warehouse productivity.

Types of packaging

Consumer package & industrial package

There are two basic kinds of packages: the consumer package and the industrial package.

The consumer package is also referred to as the interior, or marketing package, because it is what the customer sees when the product is on the shelf. It is designed to appeal to and inform the final customer.

interior package & exterior package

The industrial package is also known as the exterior package, and is primarily a logistics responsibility. This package is discarded before the products are placed on the shelf, so customer may never even see this material.

Functions of packaging

Marketing function of packaging

Packaging serves two basic functions: marketing and logistics. In the marketing function, it provides customers with information about the product and promotes the product through the use of color and shape.

This information may be in the form of instructions on how to use, store, and dispose of the product, or it could be guidance on how to handle items during transit.

Logistics function of packaging

A second critical function is from a logistics perspective that of protection. This role may involve protection from damage in the warehouse or on the way of transportation, security from tampering or contamination by other products, or shielding from weather.

Six main functions of packaging

More specifically, packaging performs six functions:

1. **Containment**. Products must be contained before they can be moved one place to another. If the package breaks open, the item can be damaged or lost, or even cause environmental pollution.

2. **Protection.** To protect the contents of the package from damage or loss from outside environmental effects.

3. **Apportionment.** To reduce the large output from industrial production to a desirable smaller "consumer" size.

4. **Unitization.** To permit primary packages to be unitized into secondary packages. This reduces the number of times a product must be handled.

5. **Convenience.** To allow products to be used conveniently; that is, with little wasted effort by customers.

6. **Communication.** The use of unambiguous, readily understood symbols such as a UPC (Universal Product Code).

New Words and Expressions

packaging ['pækidʒiŋ] *n.*	包装
perspective [pə'spektiv] *n.*	远景，前途
sector ['sektə] *n.*	部分，部门
lag [læg] *v.*	落后，滞后
coastal ['kəustl] *adj.*	沿海的
discard [dis'kɑ:d] *v.*	丢弃，抛弃
tamper ['tæmpə] *v.*	损害
contamination [kən,tæmi'neiʃən] *n.*	玷污，污染，污染物
shield [ʃi:ld] *v.*(from)	保护，防护
apportionment [ə'pɔ:ʃənmənt] *n.*	分配，分派，分摊
unambiguous ['ʌnæm'bigjuəs] *adj.*	不含糊的，明确的
symbol ['simbəl] *n.*	符号，记号，象征

Notes

1．Packaging is an important concern for warehousing and materials handling, one that receiving increased attention around the world.

包装对仓储和物资搬运作业至关重要，它在全球日益受到关注。

2．Over the past two years, Shanghai has increased the investment for its packaging industry in order to ensure that its packaged products meet the demands of consumers for damage-free goods.

在过去的两年里，上海增加了它在包装业的投资，以确保它的包装产品满足消费者对无损伤货物的要求。

3．This role may involve protection from damage in the warehouse or on the way of transportation, security from tampering or contamination by other products, or shielding from weather.

这个作用包括防止货物在仓库时或运输途中的损坏，免受其他货物的挤压和污染，或免于天气的影响。

4．UPC　UPC 是 Universal Product Code 的简写，通用产品码：由美国制定的条形码，于 1973 年开始推行

Exercises

I．Fill in the blank and put the sentence into Chinese

1．Shanghai has increased investment for its _____ in order to ensure that its packaged products meet the demands of consumers for _____ goods.

2．Manufacturers have come to realize that the improved packaging of commodities can significantly increase the _____of products.

3．Good packaging can have a positive impact on_____, design and overall _____.

4．The _____package, which is designed to appeal and inform the final customer, is also referred to the _____,or _____ package.

5．The _____ package is discarded before the products are placed on the shelf, so _____may never even see this material.

6．In the _____function, _____provides customers with information about the product and promotes the product through the use of _____ and_____.

7．More specifically, packaging performs six functions that is protection,_____, _____, apportionment, communication and _____.

II．Phrases translation

商业包装	国内外市场
工业包装	包装工业
产品质量	无损伤货物

包装的功能　　通用商品码

III. Do you know the six main functions of packaging from the logistics perspective? Please discuss with your partner and complete the following table

Main function	Detail explanation
1.	
2.	
3.	
4.	
5.	
6.	

IV. Challenging questions for discussion

1. What is it implied by the example of Shanghai?
2. What kinds of the packaging are they?
3. What are the functions of packaging?
4. What information can be provided in the marketing function?
5. What is the logistics function of packaging?

Part II Packaging Design

Overview of Package Design

Package design is important

The package should be designed to provide the most efficient storage. Good packaging interfaces well with the organization's materials handling equipment and allows efficient utilization of storage space as well as transportation cube and weight constraints.

Nowadays, the master carton and the unitized load become basic handling units for logistical operations.

Concept of master carton

Individual products or parts are typically grouped into cartons, bags, bins, or barrels for handling efficiency. Containers used to group individual products are called *master cartons*.

The weight, cube, and damage potential of the master carton determines transportation and materials handling requirements. If the package is not designed for efficient logistical processing, overall system performance suffers.

Factors Affecting Good Packaging Design

Good package design is influenced by (1) standardization, (2) pricing (cost), (3) product or package adaptability, (4) protective level, (5) handling ability, (6) product packability, and (7) reusability and recyclability.

Saving Money through Efficient and Effective Packaging

Packaging affects costs and customer service level

Packaging impacts both costs and customer service levels. Product packaging in standard configurations and order quantities helps logistical efficiency. Investing in efficient and effective packaging can save a company money in the following ways：

- Lighter packaging may save transportation costs.
- Careful planning of packaging size/cube may allow better space utilization of warehousing and transportation.
- More protective packaging may reduce damage and requirements for special handling.
- More environmentally conscious packaging may save disposal costs and improve the company's image.
- Use of returnable containers provides cost savings as well as environmental benefits through the reduction of waste production.

Two Issues for Package Design

Good package design can improve cube utilization

Cube Utilization. Cube Utilization can be improved through reduced package size. For example, orange juice can be concentrated by eliminating air inside packages. IKEA, the Swedish retailer of unassembled furniture, emphasizes cube minimization to the point that ships pillows vacuum-packed. IKEA uses a cube minimization strategy to successfully compete in the United States even though the company ships furniture from Sweden. Some experts believe that improving cube utilization is the greatest opportunity of packaging and predict that, in general, packaging cube can be reduced by as much as 50%, which doubles transportation efficiency.

Weight utilization can be achieved with good package design

Weight Utilization. Heavy products, like steel ball or liquid in glass bottles, often meet the weight limitation of a transport vehicle before its cube is filled. The total weight can sometimes be reduced by package changes. For example, using plastic bottles instead of glass increases the number of bottles that can be loaded in a trailer. Even when package

design is not changed, heavy products may offer lightweight special opportunities as lightweight product can be top loaded to take advantage of the empty cube without substantially changing total weight or transportation cost.

New Words and Expressions

constraint [kən'streint] *n.*	约束
standardization [ˌstændədai'zeiʃən] *n.*	标准化
adaptability [ədæptə'biliti] *n.*	适应性
conscious ['kɔnʃəs] *adj.*	有意识的
concentrate ['kɔnsentreit] *v.*	集中，浓缩
unassembled ['ʌnə'sembld] *adj.*	未装配的
lightweight ['laitweit] *adj.*	轻质的
substantially [səb'stænʃ(ə)li] *adv.*	实质上地，重大地

Notes

1．Good packaging interfaces well with the organization's materials handling equipment and allows efficient utilization of storage space as well as transportation cube and weight constraints。

好的包装能很好地与该组织的物资搬移设备相匹配，使得在满足运输容积和重量约束条件的情况下能有效地利用存储空间。

2．If the package is not designed for efficient logistical processing, overall system performance suffers.

如果包装的设计不是针对高效的物流流程，整个系统的性能就会受到损害。

3．IKEA uses a cube minimization strategy to successfully compete in the United States even though the company ships furniture from Sweden.

IKEA 使用体积最小化战略在美国竞争得很成功，即使该公司是从瑞典运输家具。

4．Even when package design is not changed, heavy products may offer special opportunities as lightweight product can be top loaded to take advantage of the empty cube without substantially changing total weight or transportation cost.

即使在不改变包装设计的情况下，重物品的运输也可有多种选择，因为可利用空余的容积将轻物品装载在顶部以避免大幅度改变总重量或总运输成本。

Exercises

I．Fill in the blank and put the sentence into Chinese

1．Good packaging interfaces well with the organization's materials handling equipment and allows efficient utilization of _____as well as transportation _____and _____constraints.

2．Containers used to group individual products are called _____.

3．Good package design is influenced by_____, pricing (cost), product or package adaptability, _____, handling ability, product packability, and reusability and_____.

4．Packaging impacts both _____and _____levels.

5．Careful planning of packaging size/cube may allow better space utilization of _____ and_____.

6．More environmentally conscious packaging may save _____costs and improve the company's_____.

7．Use of returnable containers provides _____as well as environmental benefits through the_____.

8．_____ and _____shall be taken into consideration for package design.

II．Phrases translation

主箱	处理成本
运输容积和重量	可回收使用的容器
标准结构	容积利用率
订货数量	体积最小化
运输成本	运输效率
包装尺寸	真空包装
环保包装	载重率

III．What benefits will efficient and effective packaging bring to a company? Line the specific packaging with its benefits.

1．Lighter packaging	a．Reducing of waste production
2．Environment-conscious packaging	b．Saving disposal costs
3．Well-planned packaging	c．Making full use of space in transportation
4．Returnable containers	d．Reducing damage
5．Protective packaging	e．Saving transportation costs

IV．Challenging questions for discussion

1．What is the function of master carton?

2．What are the factors influence good packaging design?

3．How can we save money with packaging?

4．What factors shall be taken into consideration for package design?

Part III Supplementary Reading

Packaging Materials

Introduction of Packaging Materials

Numerous material types are used for logistics packaging. Traditional alternatives are reviewed first, followed by a discussion of emerging material alternatives.

Traditional Materials

Corrugated materials

Corrugated materials and corrugated cardboard boxes are the general one required by common carriers in the United States since the early 1900s.

Other traditional packaging materials include burlap bags, blankets, steel cans, pails, drums and straps, cages, and multiwall paper bags and drums.

New options include low-density plastic film, shrink-wrap, stretch-wrap, bags and barriers, high-density plastic boxes and totes, plastic strapping, and plastic foam cushioning and dunnage for fragile and irregular shapes.

New Emerging Packaging

Shippers push new emerging package

Technological innovation has improved a logistical packaging renaissance. Shippers are encouraging experimentation with new, less costly, and creative packaging systems.

Emerging packaging includes film-based packaging, blanket-wrapping, returnable containers, intermediate bulk containers, pallet pools, plastic pallets, and alternatives that require special material handling equipment. Although several of these are adaptations of traditional packaging concepts, they are differentiated from traditional methods in two critical respects. First, they are customized for specific logistical systems and products; and second, they are designed to minimize the costs of packaging and solid waste disposal.

Film-based Packaging

Film-based packaging

Film-based packaging utilizes flexible packaging materials rather than rigid packaging. Today they are used to form actual shipping packages

for consumer goods such as cans and bottles, furniture, appliances, and small vehicles. The new packages generally are combined with rigid materials. For example, cans are shrink-wrapped into a corrugated fiberboard tray and plastic bottle trays have corner support.

Advantages of Film-based packaging

Film-based flexible packaging provides several advantages. Film-based systems operate automatically, reducing the labor costs. A roll of film fits most product equally well, thus eliminates the need to maintain inventories of various sized boxes. It also minimizes shipment weight and cube and reduces inventory storage space; additionally, less rubbish remains after the product is unpacked. A final advantage is that damage is reduced. Research shows that freight is generally handled more carefully when it is clearly visible rather concealed in a box.

Blanket-wrapping

Application of blanket-wrapping

Blanket-wrapping is a traditional form of packaging provided by household goods movers. It is ideally suited for products like tables or chairs.

Support decking is erected with plywood and bars that lock into trailer walls; products are stacked into the decking and the product surfaces are protected with blankets.

The blanket-wrap has been extended into premium uncartoned transportation service.

Returnable Containers

Most reusable packages are steel or plastic, although some firms reuse corrugated fiberboard boxes. Automobile manufacturers use returnable racks for interplant shipment of body parts, and chemical companies reuse steel drums. There is an increasing trend, however, to reusable packaging applications for many small items and parts such as ingredients, grocery perishables, interplant shipments, and retail warehouse-to-store totes.

Intermediate Bulk Containers

Application of IBCs

Intermediate Bulk Containers (IBCs) are used for granular and liquid product shipment. Typical products include resin pellets, food ingredients, and adhesives. The most frequently used IBCs are bulk bags and boxes.

Plastic Pallets

Characteristic of plastic pallets

Plastic pallets is sanitary, lightweight, and recyclable, and the life cycle costs are comparable to traditional wooden pallets. The grocery industry is testing alternative plastic pallet designs for durability and operational performance.

Refrigerated Containers

Functions of refrigerated containers

Refrigerated pallets are self-contained refrigerated shipping units. They can be loaded inside a regular dry van, which eliminates dependency on trucks with refrigerated power units. They can also facilitate the efficient and effective flow of a full range of products that depend on controlled temperatures to extend shelf life and marketability, including fresh foods, flowers, chemicals, and frozen foods.

New Words and Expressions

emerge [iˈməːdʒ] *v.*	涌现
premium [ˈprimjəm] *n.*	额外费用
corrugated [ˈkɔrəgeitid] *adj.*	波纹状的，弄皱的
corrugated cardboard	瓦楞纸板
ingredient [inˈgriːdiənt] *n.*	拼料，配料
granular [ˈgrænjulə] *adj.*	颗粒的，粒状的
resin [ˈrezin] *n.*	树脂
adhesive [ədˈhiːsiv] *n.*	黏合剂
sanitary [ˈsænitəri] *adj.*	清洁的
fiberboard [ˈfaibəˌbɔrd] *n.*	纤维板
rigid [ˈridʒid] *adj.*	硬的，刚性的
tray [trei] *n.*	盘，碟
freight [freit] *n.*	货物，运费，货运
conceal [kənˈsiːl] *v.*	隐藏，隐蔽
decking [dek] *v.*	装饰，修饰，装甲板
erect [iˈrekt] *v.*	使竖立，使直立
fragile [ˈfrædʒail] *adj.*	易碎的，脆的
irregular [iˈregjulə] *adj.*	不规则的，无规律的
renaissance [rəˈneisəns] *n.*	复兴，新生
differentiate [ˌdifəˈrenʃieit] *v.*	区别，区分

Notes

1. Traditional alternatives are reviewed first, followed by a discussion of emerging material alternatives.

先回顾传统的包装材料选择，然后是对正涌现的包装材料选择的讨论。

2. Other traditional packaging materials include burlap bags, blankets, steel cans, pails, drums and straps, cages, and multiwall paper bags and drums.

其他传统包装材料包括粗麻布包、毛毡、钢罐、桶、鼓、绑扎带、笼、多层纸袋和多层纸桶。

3. New options include low-density plastic film, shrink-wrap, stretch-wrap, bags and barriers, high-density plastic boxes and totes, plastic strapping, and plastic foam cushioning and dunnage for fragile and irregular shapes.

包装材料的新选择包括低密度塑料膜、收缩包装、弹性包装、袋子和阻隔物、高密度塑料箱、搬运箱、塑料绑带和用于易碎和不规则形状物品的塑料泡沫垫料和填衬料。

4. Emerging packaging includes film-based packaging, blanket-wrapping, returnable containers, intermediate bulk containers, pallet pools, plastic pallets…

新型包装包括薄膜类包装、毡布包裹、可回收容器、中型散货容器、托盘组和塑料托盘……

5. Intermediate Bulk Containers (IBCs) are used for granular and liquid product shipment.

中型散货容器适用于颗粒状和液状物品的运输。

6. Plastic pallets are sanitary, lightweight, and recyclable, and their life cycle costs are comparable to traditional wooden pallets.

塑料托盘卫生、质轻、可循环使用，而且它们的生命周期成本可与传统的木质托盘相比。

7. They can also facilitate the efficient and effective flow of a full range of products that depend on controlled temperatures to extend shelf life and marketability, including fresh foods, flowers, chemicals, and frozen foods.

它们也能够促进包括新鲜食品、花卉、化学制品和冷冻食品在内的，依靠温控来延长保存期和增强销售能力的广大范围产品的高效率和有效果的流通。

Exercises

Challenging questions for discussion

1. What is the difference between materials of traditional packaging and new emerging packaging?

2. What is the advantage of the film-based packaging ?

3. Give some examples of new emerging packaging.

4. Please explain the usage of blanket-wrapping and returnable container.

5. Explain the application of the refrigerated container?

Chapter 10 Physical Distribution



Chapter Outline

Part I Distribution Performance Cycle and Functionality

- Concept and Performance Cycle of Physical Distribution
- Importance of Physical Distribution
- Types of Distribution

Part II Distribution Center and Its Contribution to Regional Economy

- Introduction of Distribution Center
- Differences from a Warehouse
- Trends of Distribution Centers
- Contribution of DCs to Regional Economy
- Case Study—Third Party Logistics Provider in Northeast Illinois

Part III Supplementary Reading：*An Integrated System of DC*

- Designing and Equipping Distribution is a Complex Process
- The Sports Authority's Regional Distribution Center —An Overview

Part I Distribution Performance Cycle and Functionality

Concept and Performance Cycle of Physical Distribution

What is physical distribution

Physical distribution operations involve processing and delivering customer orders. Physical distribution is integral to marketing and sales performance because it provides timely and economical product availability. The overall process of gaining and maintaining customers can be broadly divided into transaction-creation and physical-fulfillment activities. The transaction-creating activities are advertising and selling. Physical distribution performs the physical-fulfillment activities.

Distribution performance cycle

The typical physical distribution performance cycle involves five related activities. They are order transmission, order processing, order selection, order transportation, and customer delivery. The basic physical distribution performance cycle is illustrated as following (Fig.10-1):

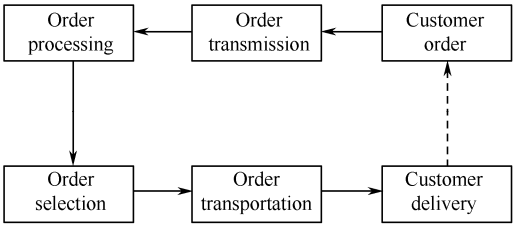


Fig.10-1 Distribution performance cycle

Distribution functionality

From a logistical perspective, physical distribution links a firm with its customers. Physical distribution resolves marketing and manufacturing initiatives into an integrated effort. The interface between marketing and manufacturing can be conflictive. On the one hand, marketing is dedicated to delighting customers. In most firms, minimal limits are imposed by marketing and sales when it comes to accommodation customers. Often, this means that marketing and sales would like to maintain a broad product line with high inventory regardless of each product's actual profit potential. In this way, any customer's requirement, no matter how small or large, would be satisfied. The expectation of physical distribution is that zero defect service will be achieved and customer-focused marketing efforts will be supported.

Importance of Physical Distribution

The very fact that physical distribution deals with customer requirements

Importance of related operations in physical distribution

means that related operations will be more erratic than characteristic of manufacturing support and procurement performance cycles. Attention to how customers order products is essential to reduce physical distribution operational variance and simplify transactions. First, every effort should be made to improve forecast accuracy. Second, a program of order management coordination with customers should be initiated to reduce uncertainty as much as possible. Third, and finally, physical distribution performance cycles should be designed to be as flexible and responsive as possible.

Customers initiate the physical distribution performance

The key to understanding physical distribution performance-cycle dynamics is to keep in mind that customers initiate the process by ordering. The logistical response capability of the selling enterprise constitutes one of the most significant competencies in overall marketing strategy.

Types of Distribution

Three types of distribution can be used to make product available to consumers: (1) intensive distribution, (2) selective distribution, and (3) exclusive distribution.

Intensive distribution

In **intensive distribution**, the product is sold to as many appropriate retailers or wholesalers as possible. Intensive distribution is appropriate for products such as chewing gum, candy bar, soft drinks, bread, film, and cigarettes where the primary factor influencing the purchase decision is convenience. Industrial products that may require intensive distribution include pencils, paper clips, transparent tape, file folders, typing paper, screws and nails.

Selective distribution

In **selective distribution**, on the other hand, the number of outlets that may carry a product is limited, but not to the extent of exclusive dealing. By carefully selecting wholesalers or retailers, the manufacturer can concentrate on potentially profitable accounts and develop solid working relationships to ensure that the product is properly merchandised. The producer also may restrict the number of retail outlets if the product requires specialized servicing or sales support. Selective distribution may be used for product categories such as clothing, appliances, televisions, stereo equipment, home furnishings, and sports equipment.

Exclusive distribution

When a single outlet is given an exclusive franchise to sell the product in a geographic area, the arrangement is referred to as **exclusive distribution**. Products such as specialty automobiles, some major

appliances, certain brand of furniture, and lines of clothing that enjoy a high degree of brand loyalty are likely to be distributed on an exclusive basis. This is particularly true if the consumer is willing to overcome the inconvenience of traveling some distance to obtain the product. Usually, exclusive distribution is undertaken when the manufacturer desires more aggressive selling on the part of the wholesaler or retailer, or when channel control is important. Exclusive distribution may enhance the product's image and enable the firm to charge higher retail prices.

New Words and Expressions

physical distribution [ˌdistri'bju:ʃən]	实物配送
performance [pə'fɔ:məns] *n.*	履行，执行，运行，性能
physical-fulfillment [ful'filmənt]	实物实现
illustrate ['iləstreit] *v.*	插图，解释说明
conflictive [kən'fliktiv] *adj.*	冲突的，矛盾的
erratic [i'rætik] *adj.*	反复无常的，不稳定的
dynamics [dai'næmik] *n.*	动态，动力学
transparent [træns'pɛərənt] *adj.*	透明的
outlet ['autlet, -lit] *n.*	市场渠道，批发商店
franchise ['fræntʃaiz]*n.*	特许（经营）权

Notes

1．Physical distribution is integral to marketing and sales performance because it provides timely and economical product availability.

实物配送是履行营销和达成销售业绩所必不可少的，因为它提供了及时且经济的获取产品的可能性。

2．They are order transmission, order processing, order selection, order transportation, and customer delivery.

它们是订单传送、订单处理，订单拣货、订货运输以及向客户交货。

3．Attention to how customers order products is essential to reduce physical distribution operational variance and simplify transactions.

注意客户是如何订购产品对降低实物配送操作的不协调性和简化交易至关重要。

4．The logistical response capability of the selling enterprise constitutes one of the most significant competencies in overall marketing strategy.

销售企业的物流响应能力构成总营销战略中最重要的竞争力之一。

Exercises

I. Form phrases

实物配送
_____ distribution

实物履行
Physical _____

订单处理
Order _____

客户要求
Customer _____

集约式分销
_____ distribution

选择性分销
_____ distribution

独家分销
_____ distribution

零售价
_____ Price

II. Fill in the blanks and put the sentences into Chinese

1. The overall process of _____ customers can be broadly divided into _____ and physical-fulfillment activities.

2. They are order transmission, _____, order selection, _____, and customer delivery.

3. Often, this means that marketing and sales would like to maintain a broad product line with high inventory _____ each product's actual profit potential.

4. The _____ that physical distribution deals with customer requirements means that related operations will _____ than characteristic of manufacturing support and procurement performance cycles.

5. Physical distribution _____ should be designed to be as _____ as possible.

6. The producer also may _____ the number of retail outlets if the product requires specialized servicing or _____.

III. Please complete the following table to get yourself familiar with the information on types of distribution

Type of distribution	Appropriate customers	Appropriate products

IV. Listen to the conversation, and answer the question or complete the sentences

1. Darden restaurant successfully manages 4 distinctly different distribution styles for supply chain management _____, _____, _____, _____.

2．What kind of products are central distribution used for ?

3．What are the characteristics of independent supply chain?

4．How does Darden use direct distribution strategy?

5．What is the distribution strategy Darden uses for its US $150 million or more seafood?

V．Challenging questions for discussion

1．Please explain the physical distribution performance cycle.

2．Discuss and compare the three approaches of distribution: intensive distribution, selective distribution, and exclusive.

3．Why do we say that physical distribution links a firm with its customers?

Part II　Distribution Center and Its Contribution to Regional Economy

Introduction of Distribution Center

Concept of distribution center

Distribution center (DC) is a logistics link to fulfill physical distribution as its main function. Generally speaking, it's a large and highly automated center destined to receive goods from various plants and suppliers, take orders, fill them efficiently, and deliver goods to customers as quickly as possible.

Differences from a Warehouse

DC emphases on goods moving

Unlike a warehouse, however, the emphasis of a distribution center is on the moving of goods rather than on long-term storage. Practically, it's a short-term storage center located close to a major to facilitate the rapid processing of orders and shipment of goods to customers.

The difference between Distribution Centers and Warehouses is as follows:

DC differs from warehouse in performance cycle, activities, data collecting, products stored and its focus

Warehouses	Distribution centers
Warehouses (Ws) handle most products in four cycle, e.g., receive, store, ship, and pick.	Distribution centers (DCs) handle most products in two cycle, e.g., receive and ship.
Ws perform a minimum of value-added activities (receive-store-ship generally in original forms).	DCs perform a great deal of value-added activities, e.g., final assembly (applying the postponement strategy).

续表

Warehouses	Distribution centers
Ws collect data in batches (generally) (receive and ship goods in batches).	DCs collect data in real time (might deliver less than the batch size. The transfer batch may not, and many times should not, be equal to the process batch-OPT rule).
Ws store all products (slow or fast moving).	DCs hold predominantly high demand items.
Ws focus on minimizing the operating costs to meet shipping requirements.	DCs focus on maximizing the profit impact of fulfilling customer (external customer) delivery requirement.

Trends of Distribution Center

Trends one: demise
Trends two: DC with modified roles

There are some experts in this field that predict the demise of warehouses because in inventory stocking will no longer be needed. They claim that efficient consumer response (ECR) and Just-In-Time (JIT) in combination with point of sales (POS) data will fully synchronize the company's demand chain. Most other experts disagree and believe that integrated logistics will spur DCs to modify their roles, which will be based on speeding the flow of products and providing value-added services. Examples of the changing role of warehouses can be seen in consolidations of shipments, cross-docking, and value-added processes such as packaging, sub-assembly, kitting, labeling, and final custom work such as providing color and style to products based on customer orders. Certainly, e-Commerce has led to warehouse expansion in the USA and Europe and refocus by existing warehousing companies.

Contribution of DCs to Regional Economy

The importance of the logistics industry is frequently lost on the general public. Some people have difficulties to understand efficient distribution channels are vital to economic success. Yet the general public's lack of understanding is neither beneficial to communities nor to distribution operations.

Case Study—Third Party Logistics Provider in Northeast Illinois

The following is representative of a moderately-sized distribution center in northeast Illinois. Due to extensive economic, transportation

and other linkages, the impacts would likely extend beyond the borders of a single county. Accordingly, the case study examines the impact on a region consisting of Grundy, Kendall and Will Counties.

A distribution center with these characteristics would have the following impacts on the three-county region:

Employment. As Fig.10-2 shows, we can have the following expectation. Assumption: The facility would employ 325 positions. Impact: Related economic activity would generate or support more than 135 additional positions (full-time equivalents).

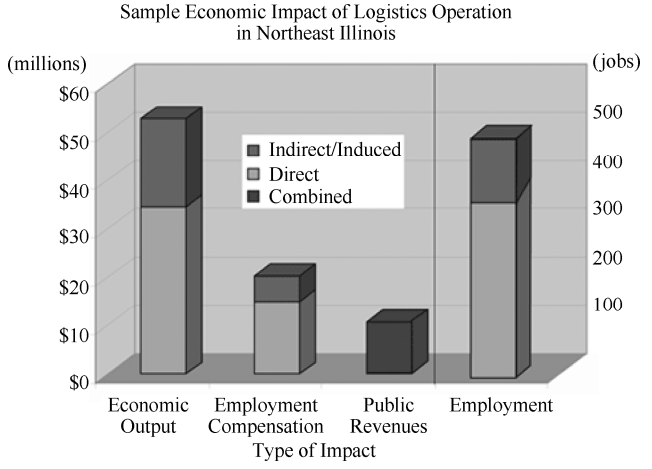


Fig. 10-2 Sample Economic Impact of Logistics Operation

Annual economic output. Assumption: The facility would generate approximately $34.5 million in annual revenues. Impact: Related activities would result in an increase of $18.4 million in economic output annually.

Employment compensation. Assumption: The distribution center would produce $15 million in annual employment compensation (including wages, salaries, bonuses, benefits, and employer paid retirement and Social Security). Impact: Related economic activity would support or generate $5.4 million in additional employment compensation each year.

Public revenues. Impact: Given the aforementioned assumptions, the economic activity and employment associated with the facility would result in annual increases of approximately $8.7 million in public revenues at all levels, including $5.2 million at the federal level and $3.5 million at the state/local level.

In summary, this company employs 325 workers, has annual revenues of $34.5 million and a payroll of $15 million. The facility also

supports 135 additional jobs in the community, $18.4 million in economic output, and $5.4 million in additional compensation.

New Words and Expressions

destine ['destin] *v.*	注定
deliver [di'livə] *v.*	递送
point of sales (POS)	销售时点信息系统
synchronize ['siŋkrənaiz] *v.*	使同步
minimum ['miniməm] *n. adj.*	最小值，最小化；最小的，最低的
final assembly [ə'sembli]	总装（配）
in batches [bætʃ] *adv.*	分批地，成批地
spur [spəː] *n. v.*	刺激；鞭策，刺激
predominant [pri'dɔminənt] *adj.*	主要的，突出的，有影响的
consolidation [kənˌsɔli'deiʃən] *n.*	巩固，合并
demise [di'maiz] *n. v.*	消失，死亡
sub-assembly *n.*	分装
kit [kit] *n.*	用具包，工具箱，成套用具
refocus [riː'fəukəs] *v.*	重调重心，新聚集
facility [fə'siliti] *n.*	设备，灵巧，容易，设施
compensation [kampen'seiʃ(ə)n] *n.*	补偿，报酬，赔偿金
aforementioned [əfɔː'menʃənd] *adj.*	上述的，前面提及的
payroll ['peirəul] *n.*	工资单

Notes

1. Generally speaking, it's a large and highly automated center destined to receive goods from various plants and suppliers, take orders, fill them efficiently, and deliver goods to customers as quickly as possible.

一般而言，配送中心是设计用来从不同工厂和供应者中接收货物，接受订单，高效地履行订单，并将货物尽快地送给客户的一个高度自动化的大型中心。

2. DCs collect data in real time (might deliver less than the batch size…):

集散控制系统实时收集信息（可能以少于一批的数量发货……）

3. They claim that ECR and JIT in combination with POS data will fully synchronize the company's demand chain.

他们声称有效客户反应（ECR）、准时制（JIT），结合销售时点（POS）信息，将与公司的需求链完全保持同步。

4. Employment: Assumption: The facility would employ 325 positions. Impact: Related economic activity would generate or support more than 135 additional positions (full-time equivalents).

就业：假设：配送中心提供 325 个员工岗位。影响：相关的经济活动会产生或支持超过 135 个额外的岗位（全职当量）。

Exercises

I．Form phrases

配送中心
distribution c_____

物流结点
logistics l_____

总装配
final a_____

成批地
in b_____

销售时点信息系统
p_____ of sales

有效顾客反应
efficient consumer r_____

需求链
d_____ chain

外部顾客
ex_____ customer

增值活动
value-_____activity

接受订单
take o_____

公共收入
public r_____

年度收入
a_____ revenue

II．Fill in the blanks and put the sentences into Chinese

1．Distribution center is _____ to fulfill physical distribution as its main _____.

2．Practically, it's a _____ center located close to a major to facilitate _____ of orders and shipment of goods to customers.

3．DCs _____ maximizing the profit impact of _____ (external customer) delivery requirement.

4．They claim that _____and Just In Time (JIT) in combination with _____ data will fully synchronize the company's demand chain.

5．Examples of the changing role of warehouses can be seen in _____, cross-docking, and _____.

III．Please write a paragraph introducing the performance cycle, activities, data-collecting, product stored and the focus of DC

IV．Questions for discussion

1．What do you think of the major difference between Distribution Centers and Warehouses?

2．Why do some experts predict the demise of warehouses?

3．How do other experts predict the changing of the role of DCs?

4．What are the contributions of DCs to regional economy? Try to find a local example to illustrate your points.

Part III Supplementary Reading

An Integrated System of DC

Designing and Equipping Distribution is a Complex Process

Designing and equipping is an integration exercise

Designing and equipping distribution centers is a complex process, and simply integrating all of the different hardware, software and controls required for today's state-of-art distribution systems has become a major logistics exercise in itself.

Distribution center design is a dynamic process that is constantly evolving to meet changing marketplace demands and expectations. An example is illustrated as follows:

Functions of the installation

The installation was designed to integrate the flow of product throughout the following functional areas of the distribution center: receiving, value-added service (VAS) preparation, VAS processing and takeaway, put-to-store location, and shipping.

The Sports Authority's Regional Distribution Center —An Overview

Inbound goods operation process

Inbound goods are moved from receiving areas to VAS (value-added service) processing station. After scanning and tag-generation, totes move on powered takeaway unit to VAS processing area, where they accumulate on EZ-Logic conveyors. After processing, they move up a belt incline to a re-circulation loop. Totes are diverted off the loop to one of five "fingers" in put-to-store location. Operators fill and seal cartons for the appropriate store and then place them on takeaway conveyor for movement to shipment staging. Here they merge with full pallet orders for truckload delivery to the stores.

Equipments used

To achieve that desired integration, the Sports Authority relies on a wide range use of Hytrol equipment. The units include accumulation conveyors, belt inclines and declines, live rollers, sorters and diverts , trash takeaway conveyors , and more.

When operator scans the tote, the terminal displays the quantity of product inside the tote to be put store location specified.

Inbound goods operation

Inbound goods from the vendors are initially handled in a VAS (value-added service) preparation area. The operators here remove the contents from the cartons and place the items in totes. The totes then are

scanned and the information is entered into the WMS. Labels that will accompany the items through the order-fulfillment process are generated at this point as well. Trash takeaway conveyors in the processing area help keep the facility clean and free from debris.

Activities in VAS processing area

The totes then are placed on a powered conveyor that carries them to the VAS processing area. Each tote is diverted to one of four lanes, where they accumulate on the EZ-Logic conveyors. Processing personnel retrieve the totes from the main accumulation line by pressing a foot pedal that controls a pneumatic divert. A work surface at bottom of the chute serves as a table for the processor to empty the contents of the tote and apply the labels and tags. Once the VAS processing is done, the totes are placed on an outbound chute, which leads to a takeaway conveyor and up an incline to a re-circulation loop.

Automated diverts send the processed totes from the re-circulation loop down one of "five fingers" in the put-to-store location section of the DC. There's a total of 152 work stations in these five accumulation lanes. Once a tote is diverted from the finger lane into a store location zone, the operator scans the tote. The terminal indicates the quantity of the product within the tote to be put to the store location specified.

Delivery operation

Operators place the appropriate quantity in a shipping carton, drawing from the carton flow racks behind them. Once the sort orders are completed, order is pushed down the carton-flow takeaway lane. These cartons are then palletized and taken to shipment staging areas, where full truckloads of product are built for store delivery. The system is streamlined and efficient. And most importantly, inventory doesn't get a chance to sit still for very long.

New Words and Expressions

evolving [i'valv] *adj.* 进化的，展开的
installation [ˌinstə'leiʃən] *n.* 安装，装置
inbound ['inbaund] *adj.* 入内的，进入方向的
debris ['debri:, 'deib̃] *n.* 碎片，残骸
tote [təut] *v. n.* 手提，拖，拉；装运物
retrieve [ri'tri:v] *v.* 重新得到，找回
conveyor [kən'veiə] *n.* 传送装置
pneumatic [nju(:)'mætik]*adj.* 装满空气的，气动的, 风力的
re-circulation [ri-sɜ:kju:'leiʃ(ə)n] *n.* 再循环，再流通
lane [leiṇ] *n.* 狭窄的通道

divert [di'və:t] *v. n.*	转移，转向；转向装置
chute [ʃu:t] *n.*	斜道
staging ['steidʒiŋ] *n.*	待出货
rack [ræk] *n.*	架，行李架
merge [mə:dʒ] *v.*	合并，并入，结合起来，吞没，融合
palletize ['pæli,taiz] *v.*	把……放在货盘上
pallet ['pælit] *n.*	货盘
streamlined ['stri:mlaind] *adj.*	精减的，简化的，高效率的
takeaway ['teikəwei] *n.*	移走，入库
WMS (warehouse management system)	仓库管理系统

Notes

1．Receiving, value-added service(VAS)preparation ,VAS processing and takeaway, put-to-store location ,and shipping.

接收，增值服务准备，增值服务操作及外运，储存定位，以及出货。

2．The units include accumulation conveyors, belt inclines and declines, live rollers , sorters and diverts, trash takeaway conveyors, and more.

这些装置包括堆垛传送带，上下皮带斜道，活动滚筒，分拣器和转向装置，废物移走传送带，等等。

3．Labels that will accompany the items through the order-fulfillment process are generated at this point as well.

伴随着物品一起贯穿履行订单的整个过程的标签也在此处生成。

4．Once the VAS processing is done, the totes are placed on an outbound chute, which leads to a takeaway conveyor and up an incline to a re-circulation loop.

一旦增值服务操作完成，载运物就被放置到外输斜道上，通向移走传送带，再向上传送到达再循环环路。

5．The system is streamlined and efficient. And most importantly, inventory doesn't get a chance to sit still for very long.

这一系统是最新型的且富有效率。最重要的是，存货不可能停滞很长时间。

Exercises

Ⅰ. Form phrases

动态过程	功能区域
d_____ process	f_____ areas
增值服务	整车运送
v_____ service	full _____ delivery
待出货区	进库货物
st_____ area	in_____ goods

仓库操作人员	仓库管理系统
warehouse op_____	warehouse ma_____ system

II. Fill in the blanks and put the sentences into Chinese

1. Inbound goods are moved from receiving areas to _____ processing station.

2. Operators _____ cartons for the appropriate store and then place them on takeaway conveyor for movement to _____.

3. Trash takeaway conveyors in the _____ help keep _____ clean and free from debris.

4. The totes then are _____ a powered conveyor that carries them to the _____.

5. Once the VAS processing is done, the totes are placed on _____, which leads to a takeaway conveyor and up an incline to _____.

6. Operators place the _____ in a shipping carton, _____the carton flow racks behind them.

III. Challenging questions for discussion

1. Why should we say that distribution center design is a dynamic process?

2. Generally speaking, what are the major functional areas of a distribution center?

3. Please explain the processing procedure in this distribution center.

4. What equipment does the Sports Authority rely on?

5. Do you think this system is efficient? Defend your answer.

Chapter 11 Correspondence



Chapter Outline

Part I Business Letters
- Overview of Business Letters
- Main Parts of a Business Letter
- Other Parts of a Business Letter
- Layout of a Business Letter
- Envelope Addressing

Part II Electronic Correspondence
- Overview of Electronic Correspondence
- Telex
- Fax
- E-mail

Part III Supplementary Reading: *Specimen of Business Correspondence*
- Specimen Envelope
- Specimen Letter
- Specimen Telex
- Specimen Fax
- Specimen E-mail

Part I Business Letters

Overview of Business Letters

Principle of 3 C's

Business letter writing is an important part of business activities. Despite the great advances made in the area of telecommunication, the letter still remains one of the most personal, economical and effective methods of written communication. Because a letter and its reply can make a written contract, it is often used to take the place of personal calls and telephone calls even when the two parties are in the same city, and must therefore be written in accordance with the principle of **three C's**, that is, **clearness**, **conciseness**, and **courtesy**.

Main Parts of a Business Letter

A typical English business letter generally consists of the following **eight main parts**.

Heading (Letterhead)

1. The heading is printed in the top center or at the top left margin of a letter, containing all the necessary information of the writer's name, address, postcode, telephone number, telex number, fax number and E-mail address.

Date

2. The date should be typed all in one line and below the heading. The format of the date line differs from nation to nation. The common ones are M/D/Y (typical American) and D/M/Y (typical British). Because of the different usage in the United States and in the United Kingdom, the month should be spelt out in full without using figures or abbreviations for it in order to avoid any possible confusion. For example, 5,10,2010 means May 10, 2010 in the United States and October 7, 2010 in the United Kingdom.

Inside name and address

3. Inside name and address refers to the name and address of the receiver and should be typed two or four lines spaces below the date and above the salutation at the left margin. It usually consists of the receiver's name, and detailed address such as house or building number, the street, the city, the state or the province, the postcode and the country. This part exactly appears on the envelope but cannot be omitted as the letter will be filed later for the completeness of the documents.

Salutation

4. The salutation is merely a matter of custom and a polite greeting to the receiver. It is typed at the left margin, two or three lines spaces below the inside name and address. The salutation varies with the writer's

relationship with the receiver and the formality level of the letter. The ones customarily used can be "Dear Sir(s)", "Dear Madam", and "Dear Mesdames", followed by a comma.

5. The subject line (or: Caption) gives the general content or purpose of the letter. It comes two lines below the salutation and above the body of the letter, underlined and generally preceded by "Re:" or "Subj.".

Body of the letter

6. Body of the letter contains the message of the letter. It extends the writer's idea and what he expects from the receiver of the letter. It is the most important part of a letter, and should be carefully arranged. The "three C's" principle mentioned above shall be achieved.

Complimentary close

7. Complimentary close is a polite ending of the letter, placed two lines spaces below the body of the letter. It is in line with the salutation and the commonly used closings are "Yours faithfully / sincerely / truly" and "Faithfully / Sincerely / Truly yours".

	Salutation	Complimentary Closes
Very formal	My dear Sir Sir My dear Madam Madam	Respectfully Respectfully yours Yours respectfully Very respectfully yours
Formal	Dear Sir or Madam Dear Madam Gentlemen Sir	Yours faithfully Yours truly Very truly yours Yours very truly
Less formal (the trend today is to use these forms in business correspond- dence rather than the formal form)	Dear Mr. Carpenter My dear Mr. Carpenter Dear Mrs. Helen My dear Mrs. Helen Dear Miss Helen My dear Miss Helen	 Yours sincerely Very sincerely Sincerely yours Sincerely
Personal (Imply personal acquaintances or previous friendly correspondence)	 Dear Mr. Black Dear Mrs. Brown Dear Miss Helen Dear Richard	Yours cordially Cordially yours Cordially Most sincerely Best regards Best wishes

Signature

8. Signature is immediately below the complimentary close by typing the company's name of the writer, followed by the writer's handwritten signature, the writer's typed name for legibility, and the writer's job title or position.

Other Parts of a Business Letter

Reference number/code
Attention line
Identification marks
Enclosure
Carbon copy notation

Apart from the above eight main parts, an English letter may include some other parts if necessary. **Reference number or code** is used as a useful indication for filing and marked with “Our Ref:” and “Your Ref:”. **Attention line** is used when the letter is addressed direct to a particular person of a company and marked with “For the attention of (name or title)” or “Attention”. **Identification marks** comprise capital initials of the writer and small letter initials of the typist as JS/ms or JS:ms, indicating their own responsibilities. The word “**Enclosure**” or its short form “Encl.” is used when enclosures are sent with the letter. The abbreviation of **carbon copy notation** “cc”, “Cc” or “CC” is typed if a copy is to be sent to a party or parties concerned.

Layout of a Business Letter

Styles of a business letter

There are two common layout styles of a business letter, known as the blocked style and the indented style. Style choice depends on the writer’s preference.

Blocked style

1. Blocked style is very modern, convenient and popular because all lines begin at the left margin, though sometimes the heading is printed or typed at the top center of the page.

Indented style

2. Indented style is a traditional one and features the inside name and address and the salutation typed in blocked style, each paragraph indented six or ten spaces, the date, the complimentary close and the signature near the right margin, and the subject line centered on the page.

Envelope Addressing

Business envelopes generally have the writer’s address printed in the upper left corner, the receiver’s name and address typed about half way down the envelope, the postmark or stamps put in the up right corner, and the notations as “Confidential” and “Registered” placed in the bottom left corner. It’s important to include the postcode on the envelope to facilitate mechanical mail sorting.

New Words and Expressions

correspondence [ˌkɔrisˈpɔndəns] *n.* 通信，信件
telecommunication [ˈtelikəmjuːniˈkeiʃən] *n.* 电信

margin ['mɑ:dʒin] *n.* 页边的空白
abbreviation [ə,bri:vi'eiʃən] *n.* 缩写，缩写式
salutation [sælju(:)'teiʃən] *n.* 致意，寒暄
customary ['kʌstəməri] *adj.* 合乎风俗或习惯的
Madam, Mesdames （用在已婚妇女名字前面）夫人
caption ['kæptin] *n.* 标题，题目
precede [pri(:)'si:d] *v.* 在前，居先，优于
complimentary [,kɔmpli'ment(ə)ri] *adj.* 恭维的，表示赞美的
signature ['signitʃə] *n.* 签字
legibility [,ledʒə'biliti] *n.* （手写或印刷文字）清晰可读性
title ['taitl] *n.* 头衔，职称
position [pə'ziʃən] *n.* 职位；位置
indication [,indi'keiʃən] *n.* 指示，表示
identification [ai,dentifi'keiʃən] *n.* 鉴定，（身份）证明
capital ['kæpitəl] *adj.* （字母表字母）大写的
initial [i'niʃəl] *n.* 首字母
responsibility [ris,pɔnsə'biliti] *n.* 责任，职责
enclosure [in'kləuʒə] *n.* 附件
notation [nəu'teiʃən] *n.* 记号，记法，标志
supplement ['sʌplimənt] *v.* 增补，补充
preference ['prefərəns] *n.* 偏爱，优先选择
feature ['fi:tʃə] *v.* 以……为特色，特色
confidential [kɔnfi'denʃəl] *adj.* 机密的，绝密的
registered ['redʒistəd] *adj.* （信件）挂号的
envelope ['enviləup] *n.* 信封
facilitate [fə'siliteit] *v.* 促进，促使，使便利
mechanical [mi'kænikl] *adj.* 机械的，机器的
sorting ['sɔ:tiŋ] *n.* 分理，分拣
blocked style [blɔkt] 平头式，齐头式
indented style [in'dentid] 缩进式

Notes

1．despite the great advances made in the area of telecommunication　尽管在电信领域已取得了重大进展

2．This part exactly appears on the envelope but cannot be omitted as the letter will be filed later for the completeness of the documents.

虽然这部分完全一样地出现在信封上，但不能被省略，因为以后要对信件归档以求文档的完整性。

3．immediately below the complimentary close　紧接在结尾敬辞下面
4．a party or parties concerned　有关方或有关各方
5．to facilitate mechanical mail sorting　以便于机械化的邮件分拣

Exercises

I．Translate the following Chinese terms into English

信头	正文	附件	缩进式	平头式
结束语	封内地址	客气称呼	发信日期	署名

II．Translate the following English terms into Chinese

attention line	postmark	reference number
identification marks	carbon copy notation	subject line
written communication	abbreviation	postcode

III．Match the following salutations with their appropriate complimentary closes

1．Dear Mrs. Smith	Yours respectfully
2．My dear Sir	Yours faithfully
3．Dear Mr. White	Very truly yours
4．Gentlemen	Best wishes
5．Dear Sirs	Yours sincerely
6．Dear Mary	Yours cordially
7．Sir	
8．Dear Madam	

IV．Challenging questions for discussion

1．Why do letters often replace personal calls and telephone calls even when the two parties are in the same city?
2．What is the principle of “Three C’s” in writing business letters?
3．How many main parts does a business letter consist of? What are they?
4．What are the two common layout styles of letters?

Part II　Electronic Correspondence

Overview of Electronic Correspondence

Electronic correspondence

With the popularization and development of information technology in the late 1990s, **electronic correspondence** is becoming an integral part in international business. The early forms of electronic correspondence are telegram and telex, but now E-mail and fax are being increasingly

used. Messages can be transmitted faster with electronic than with traditional ways, though only people with access to the systems can receive messages.

Telex

Telex, the short form of "**Teleprinter/Teletypewriter Exchange**", refers to message sent or received through a teleprinter/teletypewriter over the telephone network. It is an exchange service like the telephone service but uses teleprinters instead of telephones. Telex is more convenient, expeditious and economical than telephone or telegram. The main advantage over fax is that the appearance of the receiver's answer back code on the sender's copy of the transmitted message is proof that the message has reached the receiver's telex.

Being convenient, expeditious and economical

Telex operation

With the telex machine installed in office and connected by the telegraph office, the sender only needs to type the message on the machine and end it by direct dialing at any time. For the telex service is available 24 hours a day and the machine at the other end, even if unattended, can print out the messages automatically. In addition, a tape of a message may be prepared for sending to several different receivers at any time required, and views can be exchanged between the sender and the receiver on teleprinters by adding a "+?" signal at the end of a message, thus enabling business negotiation to be carried on until finished.

Drafting rules

Telex message should be in capital letters. Though it may be all in plain word, telex may also be drafted with some abbreviations and simplified words as the charge for a telex is based on the distance the message has to travel and time spent in transmission. For example, "thanks" is simplified as TKS and "urgent" as URG.

Differences between telex and telegram

There are some differences between telex and telegram.

1. Telex is charged by the transmission time, while telegram is charged by the number of words sent.

2. The structure of telex differs from that of telegram.

3. Combinations are seldom used in a telex, while they are commonly used in a telegram to reduce words.

4. Either punctuation marks (more commonly used) or symbols or words can be used in a telex, while no punctuation marks or symbols are used in a telegram.

5. Simplified words are commonly used in a telex, while no simplified

words are used except the most common ones such as PLS, TKU, etc.

6. The simplified word RGDS should be added at the end of a telex message, while no word or phrase of good wish is required at the end of a telegram message.

Ways of abbreviation

The following are some techniques to abbreviate longer words, which may help in drafting and understanding telexes.

1. To leave out vowels

PLS—please RPL—reply TKS—thanks

2. To retain the first syllable and the first consonant of the second syllable

CERT—certificate EXP—export ANS—answer

3. To use the first and the last letter of a word

FM—from BK—bank YR—your

4. To retain the important consonants and last letter of a word

5. Some universally accepted methods to simplify the telex words are regarded as regulations

(1) -ed (verbs)	…D	SHPD (shipped)
(2) -ing (verbs)	…G	OFFERG (offering)
(3) -ment	…MT or T	PAYMT (payment)
(4) -tion	…TN or N	INFN (information)
(5) -able or ible	…BL	POSSBL (possible)
(6) -tive	…TV	COMPTV (competitive)
(7) -ance or ince	…NC	RMTNC (remittance)
(8) -al	…L	TTL (total)

6. To use the first letter of each word of a phrase or expression

A/M (above-mentioned) YC (your cable)

FYI (for your information) ASAP (as soon as possible)

7. To use a letter or letters with the same or similar pronunciation instead of a word

N—and R—are B—be

U—you WZ—with ZS—this

Example of telex

The following is an example of a telex message:

PLS BE KINDLY IFMD TT SUB VSL LOADG NOW IN YR PORT HAS A DESPATCH / DEMURRAGE AGREEMT WZ PARTIES CONCERNED. THE LAST HR FOR HER DESPATCH IS UPTO 2400HRS 21ST MAY. IF THE LAYTIME LASTS TO 22ND, THE SHP WL ENTER INTO DEMURRAGE N WE WUD CERTAINLY SUSTAIN A GREAT LOSS.

HENCE WE WUD LIKE TO ASK U, AS OUR AGENTS, TO TALK TO THE PORT TO SPEED UP THE LOADG BY MEANS OF MORE GANGS WORKG, N ASK THE SHP'S MASTER TO OFR THE BEST COOPERATNS WZ THE PORT SIDE AND EVEN DO SOMETHING FLEXIBLE IF NECESSARY, ALL FOR THE PURPOSE OF THE SHP BEING DESPATCHED FM YR PORT.

YR KIND EFFORTS WL B HIGHLY APPRECIATED. WAITG FOR YR GD NEWS. PLS CFM ASAP. B.R.

Fax

Using telephone lines

Fax, shortened from **facsimile transmission**, is widely used for business communication. It uses the telephone line or an especially reserved telephone line for sending and receiving messages, and the telephone number is used as the fax number. The fax system operates worldwide.

Fax operation

Fax takes a few seconds to automatically transmit and receive messages for the cost of a telephone call. What is sent at one end is received simultaneously at the other end just like a duplicating machine.

Writing features

Fax messages can be drafted and transmitted in plain language like a letter, which requires good English and skills for business writing. Some businesses have their names, addresses and contract numbers printed in the form of a heading on top center of fax paper, using as fax head.

E-mail

Using computer networks or telephone lines

E-mail is the short form of **electronic mail**. It refers to a system of sending messages between individuals or from individuals to groups from one computer terminal to another, using a computer network or telephone lines. It can be restricted to a local area network or open to a wide area network. Messages are sent to a mailbox and only those with a user identification and password can have access to the messages. Each user has a unique E-mail address.

Being reliable, speedy, effective and cheap

Compared with telegram, telex, fax, postal service and telephone, E-mail is relatively **reliable, speedy, effective and cheap**. The messages can be sent or picked up anywhere in the world, simultaneously appeared on the computer screen at the other end and printed out instantly or kept in the mailbox for filing until retrieved.

Components of an E-mail

An E-mail consists of two parts, the E-mail head and the body. The **E-mail head** comprises four parts. In the column of "To", the receiver's name, title and E-mail address must be accurate. If any subject is needed, place it in the column of "Subject". In the column of "From" and "Date", the writer's E-mail address and the sending time will be shown automatically. The column of "Enclosure" will indicate the enclosure with the E-mail. And the **E-mail body** usually excludes the salutation as it is shown in the column of "To", unless it is the first time for the writer to address the receiver in order to show good order and formality.

New Words and Expressions

expeditious [ekspi'diʃəs] *adj.*	迅速的，敏捷的
teleprinter [ˌteli'printə] *n.*	电传打印机
teletypewriter [ˌteli'raitə] *n.*	电传打字机
unattended ['ʌnə'tendid] *adj.*	无人值管，无人照看
transmission [trænz'miʃən] *n.*	传送，传播，传输
facsimile ['fæsineit] *n.*	传真
simultaneously [siməl'teiniəsli] *adv.*	同时地
underneath [ˌʌndə'ni:θ] *adv. prep.*	在……下面
retrieve [ri'tri:v] *v.*	恢复
with access to	能够进入，接近，获得
answer back code	回应电码
business negotiation	商务洽谈
despatch agreement	速遣费协议
demurrage agreement	滞期费协议
duplicating machine	复印机
contract number	合同编号
user identification	用户名，用户标识

Notes

1．With the popularization and development of information technology in the late 1990s,electronic correspondence is becoming an integral part in international business.

随着信息技术在20世纪90年代后期的普及和发展，电子信函正成为国际商务中不可缺少的部分。

2．Its main advantage over fax is that the appearance of the receiver's answer back code on the sender's copy of the transmitted message is proof that the message has reached the receiver's telex.

其优于传真的主要方面在于接收方的回应电码在发送方的发送文本上的显示就是接收

方已收到电传信息的证明。

3．even if unattended　即使无人照看

4．What is sent at one end is received simultaneously at the other end just like a duplicating machine.

在一端所发送的，同时就在另一端收到了，就像复印机一样。

5．Messages are held in a mailbox and only those with a user identification and password can have access to the messages.

信息被存放在邮箱中，只有那些有用户识别码和口令的人才能得到这些信息。

Exercises

I．Translate the following Chinese terms into English

电报	电传	传真	电子邮件	电传打印机
口令	邮箱	商务洽谈	电子信函	电传打字机

II．Translate the following English terms into Chinese

user identification	answer back code	duplicating machine
information technology	computer terminal	popularization and development
transmission distance	E-mail address	combinations and simplified words

III．Translate the following into Chinese

1．FOR THIS SHPMT, BROKER FAILED TO CLEAR CUSTOMS DUE TO PROBLEMS OF DEMTS. SO HV TO POSTPONE TO NEXT VSL.

2. AS CGO IS VERY HOT SO THEY WANT US TO FOLLOW SHPT CLOSELY N ADV IF ANY DELAYS ASAP.

3．PLS FIND COPY OF FCR ON UR FAX MACHINE N PLS NOTE THIS IS TEL RELEASED PER VNDR'S REGUEST. SO U CAN RELEASE CGO WTH THE PRESENTATION OF COPY OF FCR.

IV．Challenging questions for discussion

1．What is telex? How are the telex messages sent?

2．What is fax? What are the main advantages of the fax?

3．What are the differences between telegram and telex?

4．What is E-mail? How many parts does an E-mail comprise?

Part III Supplementary Reading

Specimen of Business Correspondence

Specimen Envelope

CHINA OCEAN SHIPPING AGENCY (Stamp)
SHAHANGHAI BRANCH
13 Zhongshan Road (E1)
Shanghai P.C. 200002
China

ABC SHIPPING CO.
12 Tower Street
London, E.C. 8
England

Registered

Specimen Letter (the blocked form with a centered heading)

SHANGHAI OCEAN SHIPPING CO. ***(Heading)***
378 Dong Daming Road, Shanghai, P.R.C. 200080, China
Tel: 65416620 Telex: 33057 COSCO CN
Fax: 65458984 Cable: COSCO SHNAGHAI

Our Ref: B367 ***(Reference Number or Code)***
Your Ref: R208
Date: March 3, 2014 ***(Date)***

DIAMOND LOGISTICS LTD ***(Inside Name and Address)***
47 Federal Street, Springfield
Massachusetts 01101
U.S.A.

For the attention of Mr. David Smith ***(Attention Line)***

Dear Mr. Smith, ***(Salutation)***

Re: Chartering a Vessel ***(Subject Line)***

(Body of the Letter)

Thank you for your letter of February 25. We are pleased to inform you that we have been able to secure the vessel you asked for.

She is the M.V. Dong Fang, a bulk carrier, and is docked at present in NingPo. She has a cargo capacity of ten thousand tons and a speed of 24 knots which will certainly be able to make the number of trips you mentioned.

Please give us an early reply to confirm the charter and we will send you the charter party.

Yours sincerely, ***(Complimentary Close)***
COSCO SHANGHAI ***(Signature)***
(Signed)…
Wu Chen
Manager
Charter Department

WC/yf ***(Identification Marks)***
Encl. Charter Freight ***(Enclosure)***
cc. our Branch Office in NingPo ***(Carbon Copy Notation)***
P.S. We have just received your letter of February 28. ***(Postscript)***

Specimen Telex

33052 PENAV CN
MAY 1, 2014 –8:45 AM

ATTN: MR. LI

THIS IS TO ADV U THAT MY VSL IS NOW ON THE WAY TO YR PORT. HER ETA YRS IS 1000HRS TMW. W REQST THAT U GIVE MY SHIP A QUICK BERTHING ARNGMT, SO THAT W MAY DO THE OVERHAULG OF THE MAIN ENGINE IMDTLY.

RGDS

23568 KARLOW HK

Specimen Fax

SHANGHAI OCEAN SHIPPING CO. ***(Fax Headings)***

378 Dong Daming Road, Shanghai, P.C.: 200080, China

Tel: 65416620 Telex: 33057 COSCO CN

Fax: 65458984 Cable: COSCO SHANGHAI

Fax Message

To: Messrs. A.H. Brooks &CO Fax: 45262800 ***(Fax Head)***

From: Samlee Date: March 1, 2014

Re: Reply to Your Enquiry Pages: 1 OF 1

Dear Sirs, ***(Fax Body)***

Thank you for your enquiry of February 28, 2014.

We wish to inform you that the M.V. Dong Fang will be loading at No. 1 Dock from 18th to 25th March inclusive. Following her is the M.V. Dong Feng, loading at No. 2 Dock from 20th to 29th March inclusive. The voyage to Alexandria usually takes fifteen days and the freight rate for your goods is $149.78 per ton.

We shall be glad to book three cases for either of these vessels and enclose our shipping form. Please complete and return it as soon as possible.

Yours faithfully,

Samlee

Specimen E-mail

To: David Smith dsmith@hotmail .com ***(E-mail Head)***

Fm: Sam Brown sambrown@163.com

Dt: March 3, 2014

Subject: Transfer of Containers

Dear Mr. Smith, ***(E-mail Body)***

Our booking dept. just informed me that owing to the customs problems, cntrs could not be loaded on M.V. Zhong He. So they have to be transferred to M.V. Dong Feng. Reason is that the shipper sent export customs docs to the wrong party and did not make a copy, so we cannot help

him in any way.

Best regards,

Sam Brown

New Words and Expressions

specimen ['spesimin, -mən] *n.*	样品，样本，实例
charter ['tʃɑːtə] *v.*	包租（船、飞机等）
secure [siˈkjuə] *v.*	保护，保证
knot [nɔt] *n.*	节，海里（测船速的单位）
compulsory [kəmˈpʌlsəri] *adj.*	规定的，强制的，义务的
berth [bəːθ] *v. n.*	靠泊；泊位
overhaul [ˌəuvəˈhɔːl] *v. n.*	细密检查，检修
enquiry [inˈkwaiəri] *n.*	询价单
inclusive [inˈkluːsiv] *adj.*	包括的，包含的
COSCO (China Ocean Shipping Company)	中国远洋运输公司
direct steamer	直达轮船
shipping form	订舱单
cntrs (containers)	集装箱
export customs docs	出口海关单据

Notes

1．A cargo capacity of ten thousand tons and a speed of 24 knots.

载货能力为 1 万吨，航速为 24 节。

2．Paraphrase of the specimen telegram:

As direct steamer is unavailable, transshipment at Rotterdam is therefore compulsory. We request you to amend the L/C allowing transshipment and extending the date of shipment and validity to July 10 and 20 respectively.

该电报实例释义：因无直达船，故须在鹿特丹转运。要求你方修改信用证，允许转运并将装运日期和有效期分别延至 7 月 10 日和 20 日。

3．Paraphrase of the specimen telex:

This is to advise you that my vessel is now on the way to your port. Her estimated time of arrival at your port is 10:00 hours tomorrow. We request that you give my ship a quick berthing arrangement so that we may do the overhauling of the main engine immediately.

该电传实例释义：谨此通知贵方，我船正在驶往贵港途中，预计到港时间为明天 10:00。现要求贵方做好迅速靠泊安排，以便我方可立即进行主机大修。

4．33052 is the receiver’s telex code, PENAV is answer back, and CN is the abbreviation of

China; while 23568 is the sender's telex code, KARLOW is the name of a ship, and HK stands for Hong Kong.

33052 是接收方的电传码，PENAV 是应答码，CN 是 China（中国）的缩写；而 23568 是发送方的电传码，KARLOW 是一船名，HK 表示 Hong Kong（中国香港）。

Exercises

I. Arrange the following in indented letter style

1. Sender's name: Shanghai Ocean Shipping Company
2. Sender's address: 378 Dong Daming Road, Shanghai, P.C.: 200080, China
3. Sender's telephone number: 65416620
4. Sender's telex number: 33057 COSCO CN
5. Sender's fax number: 65458984
6. Sender's cable address: COSCO SHNAGHAI
7. Date: March 3, 2014
8. Receiver's name: Diamond Logistics Ltd.
9. Receiver's address: 47 Federal Street, Springfield, Massachusetts 01101, U.S.A.
10. Attention line: Mr. David Smith
11. Salutation: Dear Mr. Smith
12. Subject line: Chartering a Vessel
13. The message: Thank you for your letter of February 25. We are pleased to inform you that we have been able to secure the vessel you asked for. She is the M.V. Dong Fang, a bulk carrier, and is docked at present in Ningbo. She has a cargo capacity of ten thousand tons and a speed of 24 knots which will certainly be able to make the number of trips you mentioned. Please give us an early reply to confirm the charter and we will send you the charter party.
14. Complimentary close: Yours sincerely
15. Signature: COSCO SHANGHAI, Wu Chen, Manager, Charter Department

II. Address an envelope for the above letter

Chapter 12 Logistics Documents 1



Chapter Outline

Part I Government Documents

Overview of Logistics Documents
Types of Government Documents
Import License
Export License
Generalized System of Preferences Certificate of Origin Form A
Certificate of Origin
Inspection Certificate
Inspection Certificate of Weight/Quantity
Inspection Certificate of Quality
Veterinary Inspection Certificate

Part II Commercial Documents (1)

Overview of commercial documents
Invoice
Weight List
Bill of Exchange
Packing List
Insurance Policy/ Insurance Certificate

Part III Supplementary Reading：*Commercial Documents (2)*

Letter of Credit
Shipper's Export Declaration (SED)
Specimen Irrevocable Documentary Credit Application
Specimen Letter of Credit

Part I Government Documents

Overview of Logistics Documents

A large number of documents are needed in the global transport. **Logistics documents** are indispensable in the logistics services, which have the main features of accuracy, completeness, conciseness, and promptness.

Four main features of logistics documents

1. Accuracy refers to the details in logistics documents must be in strict compliance with those in the sales contract, and no vague words or expressions should be used.

2. Completeness means every necessary detail should be included in each logistics document.

3. Conciseness denotes no redundant words or expressions should be used, and no correction should be made on the logistics documents.

4. Promptness means the logistics documents should be ready when they are needed, and unnecessary delay or confusion should be avoided.

Types of logistics documents

There are three kinds of commonly used logistics documents, that is, **government documents**, **commercial documents** and **transport documents**, which are classified roughly according to the document source.

Types of Government Documents

Government documents are issued by government bodies concerned, and include import licence, export licence, inspection certificate, certificate of origin, and generalized system of preferences certificate of origin Form A, etc.

Import Licence

Definition of import licence

Import licence is a permit issued by a national government allowing an importer to bring a specific quantity of certain goods into a country. Each license specifies the volume of imports allowed, and the total volume allowed should not exceed the quota. The main functions of import licences are as follows:

Functions of import licence

1. It functions as a means of exchange control, the licence both permitting importation and allowing the importer to purchase the required foreign currency. Many countries use import license and foreign

exchange authorization system to restrict imports.

2. Import licenses are considered to be non-tariff barriers to trade when used as a way to discriminate against another country's goods in order to protect a domestic industry from foreign competition.

3. It is used to control entry of dangerous goods.

Application of import licence

Importers have to present pro forma invoices to their licensing authorities or to their central banks, or sometimes to both to apply for the licence. Licenses can be sold to importing companies at a competitive price, or simply a fee. If the planned importation is legal and meets current requirements, the licence will be issued. Therefore, exporters should not ship the goods to the importers who need licences until the licenses are actually in hand.

Export Licence

Definition of export licence

Export licence is an export control document issued by a national government required before goods can be exported from a country. Export licence is most often used to monitor the export of sensitive technologies, prohibited goods, dangerous goods, strategy goods, or goods in short supply in the home market.

Generalized System of Preferences Certificate of Origin Form A

Generalized System of Preferences Certificate of Origin Form A issued by the inspection agency in the export trade is an important part of the official documents. Generalized system of preferences is referred to as GSP. GSP is a system of general, non-discriminatory and non-reciprocal tariff preferences, under which developing countries enjoy preferential tariffs on the exports of finished and semi finished products (including some primary products) to developed countries. **GSP's objectives** are to increase the export earnings of developing countries, realize the industrialization and accelerate economic growth in developing countries. Generalized System of Preferences Certificate of Origin Form A is used to certify the country of origin of export goods enjoying the GSP tariff preferences.

GSP system

GSP's objectives

Certificate of Origin

Definition of certificate of origin

Certificate of origin is a document issued by a certifying authority such as a chamber of commerce or other authorized body in the

Elements of certificate of origin

exporter's country stating the country of origin of the goods. It is usually required by countries which do not use customs invoice or consular invoice to set the proper duties for the imports.Certificate of origin usually includes the following elements: key details (typically consignor, consignee, and description of goods) regarding the shipment and such details to be in accordance with other documents such as documentary credit and commercial invoice; a statement of origin of the goods; the name, signature and/or seal of the certifying authority, etc.

Inspection Certificate

Definition of inspection certificate

Inspection certificate is a document issued by an authority to indicate that the goods have been inspected prior to shipment and a statement of the results of the inspection. It is generally issued by a neutral, independent third-party inspection service or a government agency.

Types of inspection certificate

Inspection certificate takes many forms, such as inspection certificate of quality, inspection certificate of weight, inspection certificate of quantity, veterinary inspection certificate, inspection certificate of sanitary, disinfection inspection certificate, inspection certificate of origin, inspection certificate of value, inspection certificate on damaged cargo, inspection certificate of packing, and inspection certificate of fumigation.

Inspection Certificate of Weight / Quantity

Definition of inspection certificate of weight/ quantity

Inspection certificate of weight / quantity confirms that the goods are in line with the weight/quantity specified on the bill of lading, commercial invoice, insurance policy/certificate or other specified documents. In so doing, it confirms to the importer, the exporter, the insurance company or other specified parties that the goods were at a specified weight/quantity at the time of shipment. Inspection certificate of weight/quantity is usually requested by the importer to confirm that the weight/quantity of the goods is in conformity with the export sales contract at the time of shipment.

Inspection Certificate of Quality

Definition of inspection certificate of quality

Inspection certificate of quality confirms that the quality and specification of a particular consignment of goods is in conformity with the sales contract at the time of shipment. It may be issued by the exporter or a relevant government department as required under the letter

of credit or sales contract terms. It is essential that cargo description in the quality certificate conform to its terms found in other relevant documents, such as commercial invoice, L/C, insurance policy, etc.

Veterinary Inspection Certificate

Definition of veterinary inspection certificate

Veterinary inspection certificate certifies that a shipment of live animals, fresh, chilled and frozen meats (and sometimes even canned meats) has been inspected for disease. This certificate is generally issued by a third-party independent testing company or government authority.

New Words and Expressions

indispensable [ˌindis'pensəbl] *adj.*	不可缺少的，不能避免的
vague [veig] *adj.*	含糊的，不清楚的
conciseness [kən'sais] *n.*	简明，简洁
redundant [ri'dʌndənt] *adj.*	多余的，过多的，冗长的
promptness [prɔmpt] *n.*	迅捷，敏捷，机敏
quota ['kwəutə] *n.*	配额，限额，定额
be in strict compliance with	与……完全一致/相符
be in conformity with	与……一致/符合
government bodies	政府部门
certificate of origin	原产地证书
generalized system of preferences certificate of origin Form A	普惠制产地证格式 A
exchange control	外汇管制
non-tariff barriers to trade	非关税壁垒
pro forma invoice	形式发票
tariff preferences	关税优惠
country of origin	原产国
certifying authority	认证机构
chamber of commerce	商会
customs invoice	海关发票
consular invoice	领事发票
documentary credit	押汇信用证
inspection certificate of quality	品质检验证书
inspection certificate of weight	重量检验证书
inspection certificate of quantity	数量检验证书
veterinary inspection certificate	兽医检验证书
inspection certificate of sanitary	卫生检验证书

disinfection inspection certificate	消毒检验证书
inspection certificate of origin	产地检验证书
inspection certificate of value	价值检验证书
inspection certificate on damaged cargo	验残检验证书
inspection certificate of packing	包装检验证书
inspection certificate of fumigation	熏蒸检验证书
bill of lading	提货单
insurance policy	保险单（大保单）
insurance certificate	保险凭证（小保单）
letter of credit	信用证

Notes

1. GSP is a system of general, non-discriminatory and non-reciprocal tariff preferences, under which developing countries enjoy preferential tariffs on the exports of finished and semi finished products (including some primary products) to developed countries.

普惠制是一种普遍的、非歧视的、非互惠的关税优惠制度，给予发展中国家出口到发达国家的制成品、半制成品（包括某些农产品）优惠的关税待遇。

2. GSP's objectives are to increase the export earnings of developing countries, realize the industrialization and accelerate economic growth in developing countries.

普惠制旨在增加发展中国家的出口收入，实现发展中国家的工业化，促进发展中国家的经济发展。

3. A document issued by a certifying authority such as a chamber of commerce or other authorized body in the exporter's country stating the country of origin of the goods.

由认证机关诸如出口国的商会或其他被授权机构所出具的说明货物原产国的单证。

Exercises

I. Translate the following Chinese terms into English

官方单证	商业单证	出口许可证	产地检验证书
外汇管制	形式发票	原产国	数量检验证书
领事发票	检验证书	信用证	价值检验证书
政府部门	海运提单	保险单	兽医检验证书
相关单证	国内工业	外国竞争	普惠制产地证格式 A

II. Translate the following English terms into Chinese

logistics document	transport document
import licence	certificate of origin
foreign currency	non-tariff barriers to trade
tariff preferences	ccertifying authority

chamber of commerce	customs invoice
documentary credit	commercial invoice
inspection certificate of weight	inspection certificate of quantity
inspection certificate of sanitary	disinfection inspection certificate
inspection certificate on damaged cargo	inspection certificate of packing
inspection certificate of fumigation	insurance certificate

III. Challenging questions for discussion

1. What are the main types of logistics documents?
2. What are the main types of government documents?
3. What are the objectives of GSP?
4. What are the main functions of import licence?

IV. Be familiar with each column of the government documents in Appendix3-6

Part II Commercial Documents (1)

Overview of Commercial Documents

Types of commercial documents

Commercial documents are issued by various businesses such as the exporter, the importer, the insurance company, the shipping company, and the bank to define the business relations between the parties concerned and provide an accounting record of individual transaction. **Commercial documents** take many forms including bill of exchange or draft, insurance policy/insurance certificate, pro forma invoice, commercial invoice, consular invoice, customs invoice, packing list, weight list, measurement list, beneficiary certificate, credit note, debit note, letter of credit, etc.

Bill of Exchange

Types of draft

Bill of exchange, also known as **draft,** is an unconditional order in writing, signed by a person (drawer) such as an exporter, and addressed to another person (drawee), typically a bank, ordering the drawee to pay a stated sum of money to yet another person (payee), often the exporter, on demand or at a fixed or determinable future time. The most common types of drafts are **sight drafts** which are payable when presented, and **time drafts** (also called usance drafts) which are payable at a future fixed (specific) date or determinable (e.g. 30, 60, 90 days) date.

Invoices

Types of invoices

Invoice is a document offered by the exporter to the importer regarding the sold goods. There are four invoices mainly used in international trade: pro forma invoice, commercial invoice, consular invoice and customs invoice.

Pro forma invoice

Pro forma invoice is a preliminary invoice made out by an exporter at the importer's request before a sale or shipment of the goods, informing the importer of the kinds and quantities of goods to be sent, their value, shipping costs, and important specifications such as weight, size, and similar characteristics. Pro forma invoice is used by the importer to see what the purchaser will cost, obtain any necessary import licenses and foreign exchange approval, and apply for a letter of credit.

Commercial invoice

Commercial invoice, issued by the exporter to the importer, provides details of a transaction and forms the basis of the transaction between the importer and the exporter. It is one of the most important documents used in international trade. It primarily functions as a check for the importer against charges and delivery and as the determination of value of goods for the assessment of customs duties, preparation for consular documentation, insurance claims and packing purposes. In some cases, it may form a sales contract if it is in writing and contains all the material terms. The main parts on a commercial invoice usually include the issue date, the importer, the exporter, the invoice number, shipping marks, descriptions and quantities of the goods, prices, delivery terms and other important information concerning the transaction. **Commercial invoice** has different meanings to different parties involved. For example, it is a sales invoice for the exporter, a purchase invoice for the importer, and a document required by customs to determine true transaction value of goods for the assessment of customs duties, to prepare customs declaration, to record trade statistics, and to exercise import control.

Consular invoice

Consular invoice is an export invoice covering a shipment of goods certified in the exporting country by the consul of the importing country. This invoice is required by customs of certain importing countries to verify the value, quantity, and nature of the goods imported and to enable them to charge the correct import duties. A certificate of origin may also be required. The invoice must be purchased from the consulate of the importing country to which the goods are being shipped and usually is prepared in the language of that country.

Customs invoice

Customs invoice is an invoice made out on a special form stipulated by the customs authorities of the importing country to allow imports to enter the country. This invoice includes information that the country desires and is not found on the ordinary commercial invoice. It is only used in a few countries. Customs invoice is required by the importing country in order to clear the customs, to verify country of origin for import duty and tax purpose, to compare export price and domestic price, and to fix antidumping duty, etc.

Packing List

Definition of packing list

Packing list, also known as **packing slip,** is a document prepared by the shipper, i.e. the exporter at the time the goods are dispatched, giving details of the invoice, the shipper, the consignee, country of origin, vessel or flight details, port or airport of loading and discharge, place of delivery, shipping marks, container number, weight and/or volume (cubic) of goods, etc., but it does not contain prices. Its prime purpose is to give an inventory of the shipped goods, and it is usually required by the customs for clearance purposes.

Use of packing list

Packing list accompanies the goods and the carrier's documents throughout the transit. A copy of the packing list is often attached to the shipment itself and another copy sent directly to the consignee to assist in checking the shipment when received. Today, the provision of a packing list document is mandatory for customs and banks under documentary credit systems. Packing list may be used by different parties in different aspects. For example, it is used by the shipper to evidence the detailed weight, volume, size, packing and packaging of the cargo delivered; it is used by the freight forwarder to determine the total shipment weight and volume and whether the correct cargo is being shipped; and it is used by the carrier to calculate freight or carriage.

Weight List

Definition of weight list

Weight list, sometimes known as **weight note**, **weight memo**, or **weight certificate**, is usually issued by the exporter describing the weight of each piece of goods, and also a shipping document that accompanies delivery packages. Weight list may be used by different parties in different aspects. For example, it is used by the shipper to evidence the gross weight and the net weight of each unit of package, and the total weight of the cargo delivered; it is used by the freight

forwarder to determine the total shipment weight; and it is used by the carrier to calculate freight or carriage.

Insurance Policy / Insurance Certificate

Definition of insurance policy

Insurance policy is a document confirming insurance of cargo and indicating the type and amount of insurance coverage in force on a particular shipment. It is used to assure the insured that insurance is provided to cover loss of or damage to cargo while in transit. This document is normally issued to the party buying the insurance by an insurance company or its agent, which may include a carrier, freight forwarder, customs broker or logistics firm.

Elements of an insurance policy

Insurance policy usually includes the name, address and signature of the insurer; policy number; the name and the endorsement of the assured; points of origin and destination of the shipment; conditions of coverage, exclusions, and deductible, if appliable; a description of the risks covered and the insured time; a description of the consignment; the sum or sums insured and premium, etc.

Definition of insurance certificate

Insurance certificate, a simplified insurance policy, usually contains similar data as an insurance policy, but it excludes the detailed rights and obligations of both sides at the back of the document.

New Words and Expressions

drawer ['drɔːə]*n.*	出票人
drawee [drɔː'iː] *n.*	收票人
payee [pei'iː]*n.*	收款人
preliminary [pri'liminəri]*adj.*	初步的，开始的，预备的
specification [ˌspesifi'keiʃən] *n.*	规格，详述，详细说明书
verify ['verifai] *v.*	查证，证实，检验
consulate ['kɔnsjulit]*n.*	领事，领事馆
clear['kliə] *v.*	清关，清除，扫清
clearance ['kliərəns] *n.*	清关
mandatory ['mændətəri]*adj.*	命令的，托管的，强制性的
aspect ['æspekt] *n.*	外观，方面，方向，容貌
carriage ['kæridʒ] *n.*	运费，运输
deductible [di'dʌktəbl] *adj.*	可扣除的
bill of exchange / draft	汇票
packing list / slip	装箱单
beneficiary certificate	受益人证明

credit note	贷项通知书
debit note	借项通知书
sight draft	即期汇票
time draft / usance draft	定期汇票/远期汇票
customs duties	关税
consular documentation	领事单证
insurance claims	保险索赔
shipping marks	装运标志，唛头
delivery terms	交付条件
customs declaration	报关
antidumping duty	反倾销税
freight forwarder	货运代理
weight note/ memo/ certificate	重量单/备忘录/单据
gross weight	毛重
net weight	净重
insurance coverage	保险责任范围
the insured	被保险人
customs broker	报关经纪人，报关代理
the insurer	保险人
the sum or sums insured	投保金额

Notes

1．Bill of exchange is an unconditional order in writing, signed by a person (drawer) such as an exporter, and addressed to another person (drawee), typically a bank, ordering the drawee to pay a stated sum of money to yet another person (payee), often the exporter, on demand or at a fixed or determinable future time.

汇票是一种无条件的书面支付命令，由一人，如出口商（出票人）签发给另一人付款人，通常为银行，要求其见票即付或在未来某一确定的时间支付一定数额的款项给受款人（通常是出口商）。

2．Its prime purpose is to give an inventory of the shipped goods, and it is usually required by the customs for clearance purposes.

其首要目的是给出所运货物的一份清单，并且出于清关的需要，海关常常要求（出示）此单据。

3．A copy of the packing list is often attached to the shipment itself and another copy sent directly to the consignee to assist in checking the shipment when received.

所运货物本身通常附有一份装箱单，另一份装箱单直接寄送给收货人以便收货时核对货物。

4．Today, the provision of a packing list document is mandatory for customs and banks under

documentary credit systems.

如今，海关和银行都要求跟单信用系统下（的货物交易）必须提供装箱单。

5．It primarily functions as a check for the importer against charges and delivery and as the determination of value of goods for the assessment of customs duties, preparation for consular documentation, insurance claims and packing purposes.

它主要作为进口商核对费用和所发运货物的依据，用以确定征收海关关税的商品的价值，以及准备领事单据、保险索赔和包装事项。

6．charge the correct import duties　课以正确的进口税

7．against the stipulated documents　凭规定的单据

8．indicating the type and amount of insurance coverage in force on a particular shipment

表明对某批运输货物生效的保险的类别与金额的单据

Exercises

I．Translate the following Chinese terms into English

汇票	即期汇票	贷项通知书	装运标志
报关	装箱单	受益人证明	保险公司
毛重	海运费	货运代理	业务关系

II．Translate the following English terms into Chinese

weight list	measurement list
debit note	time draft
customs duties	consular documentation
insurance claims	descriptions of the goods
delivery terms	trade statistics
import control	antidumping duty
weight note	net weight
insurance coverage	the insured
in transit	customs broker
the insurer	the sum or sums insured

III．Challenging questions for discussion

1．What are the main types of invoices?

2．What are the main parts on a commercial invoice?

3．What are the functions of the packing list?

4．What’s the difference between insurance policy and insurance certificate?

5．What’s the main difference between the weight certificate and the quality certificate?

6．What main elements must be included in a certificate of origin?

IV. Be familiar with each column of the commercial documents of Appendix 7-10

Part III Supplementary Reading

Commercial Documents (2)

Letter of Credit

Definition of L/C

Letter of credit (L/C) is a written promise which is issued to the exporter (i.e. the beneficiary) by the opening or issuing bank upon the request of the importer (i.e. the applicant), promising to pay a certain sum of money within a certain period of time against the stipulated documents. The documents the importer requires in the credit may vary, but at a minimum include a commercial invoice and a bill of lading. Other documents the importer may specify are certificate of origin, consular invoice, insurance policy / certificate, inspection certificate and others.

Documentary L/C

Ls/C are the most common method of making international payments because the transaction risks are shared by the importer and exporter, and they are more formally called documentary Ls/C because the banks handling the transaction deal in documents instead of in goods.

Types of L/C

There are a number of different kinds of Ls/C, such as irrevocable L/C, documentary L/C, clean L/C, confirmed L/C, unconfirmed L/C, transferable L/C, acceptance L/C, sight L/C, usance L/C, deferred payment L/C, back-to-back L/C, revolving L/C, red clause L/C, standby L/C. Each type of L/C has its own advantages and disadvantages for the importer and for the exporter.

Two basic forms of L/C

Of all the types, two basic forms of Ls/C are the revocable L/C and irrevocable L/C. There are also two types of irrevocable L/C: the irrevocable L/C not confirmed, and the irrevocable confirmed L/C.

Shipper's Export Declaration (SED)

Definition of SED

Shipper's export declaration is a document prepared by the shipper and presented to a government authority specifying goods exported along with their quantities, weight, value and destination.

The SED is used by a nation's customs authority to control exports and compile trade statistics. Some countries such as the United States are in the course of instituting new procedures that will require exporters to

submit their SEDs electronically, which involves using a computer with a modem and specially designed forms software.

Specimen Irrevocable Documentary Credit Application

I RREVOCABLE DOCUMENTARY CREDIT APPLICATION

TO: BANK OF CHINA **Place/date:**

<table>
<tr><td colspan="2">Beneficiary(full name and address)</td><td>L/C NO.
Ex-Card No.
Contract No.</td></tr>
<tr><td colspan="2"></td><td>Date and place of expiry of credit</td></tr>
<tr><td>Partial shipments
☐allowed ☐not allowed</td><td>Transshipment
☐allowed ☐not allowed</td><td rowspan="2">☐Issue by airmail
☐With brief advice by teletransmission
☐Issue by express delivery
☐Issue by teletransmission(which shall be the operative instrument)
Amount(both in figures and words)</td></tr>
<tr><td colspan="2">Loading on board/dispatch/taking in charge at/from
Not later than
_____ for transportation to</td></tr>
<tr><td>Description of goods:

Packing:</td><td colspan="2">Credit available with
☐by sight payment ☐by acceptance ☐by negotiation
☐by deferred payment at against the documents detailed herein
☐and beneficiary's draft for of the invoice value
☐FOB ☐C&F ☒CIF
☐or other terms</td></tr>
</table>

Documents required:(marked with ×)

1.() Signed commercial invoice in copies indicating L/C No. and contract No.

2.() Full set of clean on board ocean bills of lading made out to order and blank endorsed, marked "freight []to collect/[]prepaid[]showing freight amount" notifying

3.() Air way bills showing "freight []to collect/[]prepaid[]indicating freight amount" and consigned to

4.() Memorandum issued by consigned to

5.() Insurance policy/certificate in copies for of the invoice value showing claims payable in destination in currency of the draft. Blank endorsed, covering([]ocean marine transportation) all risks, war risks

6.() Packing List/Weight Memo in copies indicating quantity/gross and net weight of each package and packing condition as called for by the L/C

7.() Certificate of quantity /Weight in copies issued by an independent surveyor at the loading port, indicating the actual surveyed quantity /weight of shipped goods as well as the packing condition.

8.() Certificate of quality in copies issued by []manufacture / [] public recognized surveyor /[]

9.() Beneficiary's certified copy of cable/telex dispatched to the accountees within 24 hours after shipment advising[×] name of vessel/[]No./[]wagon No., date, quantity, weight and value of shipment.

10.() Beneficiary's certificate certifying that extra copies of the documents have been dispatched according to the contract terms.

11.() Shipping Co's Certificate attesting that the carrying vessel is charted or booked by accountee or their shipping agents:

12.() Other documents, if any:

Additional instructions:

1.() All banking charges outside the opening bank are for beneficiary's account.

2.() Documents must be presented within 15 days after the date of issuance of the transport documents but within the validity this credit.

续表

3.() Third party as shipper is not acceptable. Short form/Blank Back B/L is not acceptable. 4.() Both quantity and amount % more or less are allowed. 5.() Prepaid freight drawn in excess of L/C amount is acceptable against presentation of original charges voucher issued by shipping Co./Air Line/or it's agent. 6.() All documents to be forwarded in one cover, unless otherwise stated above. 7.() Other terms, if any: You correspondents to advise beneficiary ☐adding their confirmation ☐without adding their confirmation payments to be debited to our _____ account No. Signature: _____

Specimen Letter of Credit

NATIONAL PARIS BANK
24 MARSHAL AVE DONCASTER MONTREAL, CANADA

WE ISSUE OUR IRREVOCABLE DOCUMENTARY CREDIT NUMBER:QQ2014 IN FAVOUR OF: SHANGHAI KNITWEAR AND MANUFACTURE GOODS IMPORT AND EXPORT TRADE CORPORATION.

321, CHONGSHAN ROAD SHANGHAI, CHINA

BY ORDER OF: YI YANG TRADING CORPORATION
88 MARSHALL AVE
DONCASTER VIC 3108
CANADA

FOR AN AMOUNT OF USD89 705.00

DATE AND PLACE OF ISSUE: SEP.18th, 2014 MONTREAL

DATE OF EXPIRY: NOV 15, 2014

PLACE: IN BENEFICARY'S COUNTRY

BY NEGOTIATION OF BENEFICIARY'S DRAFT DRAWN ON US AT SIGHT IN MONTREAL

THIS CREDIT IS TRANSFERABLE AGAINST DELIVERY OF THE FOLLOWING DOCUMENTS

+ COMMERCIAL INVOICES IN 3 COPIES

+ CANADA CUSTOMS INVOICES IN 3 COPIES

+ ORIGINAL CERTIFICATE IN 3 COPIES

+ FULL SET OF NEGOTIABLE INSURANCE POLICY OR CERTIFICATE BLANK ENDORSED FOR 110 PERCENT OF INVOICE VALUE COVERING ALL RISKS.

+ FULL SET OF ORIGINAL MARINE BILLS OF LADING CLEAN ON BOARD PLUS 2 NON-NEGOTIABLE COPIES MADE OUT OR ENDORSED TO ORDER OF NATIONAL PARIS BANK 24 MARSHALL AVE DONCASTER MONTREAL, CANADA.

+ SPECIFICATION LIST OF WEIGHTS AND MEASURES IN 4 COPIES COVERING SHIPMENT OF COTTON TEA TOWELS.

AS PER S/C MN808

FOR 1-300 SIZE 10 INCHES*10 INCHES 16000 DOZ AT USD 1.31/DOZ.

301-600 SIZE 20 INCHES*20 INCHES 6000 DOZ AT USD 2.51/DOZ.

AND 601-900 SIZE 30 INCHES*30 INCHES 11350 DOZ AT USD 4.73/DOZ.

CIF MONTREAL

FROM SHANGHAI TO MONTREAL

NOT LATER THAN OCT.31TH, 2014

PARTIAL SHIPMENTS: ALLOWED

SPECIAL INSTRUCTIONS:

+ ALL CHARGES IF ANY RELATED TO SETTLEMENTS ARE FOR ACCOUNT OF BENEFICIARY.

+ IN CASE OF PRESENTATION OF DOCUMENTS WITH DISCREPANCY (IES) A CHARGE OF USD 55.00 WILL BE DEDUCTED.

THIS CREDIT IS SUBJECT TO UCP DOCUMENTARY CREDITS(2007 REVISION) ICC PUBLICATION 600.

New Words and Expressions

compile [kəm'pail] *v.*	汇集，编辑，编制；搜集(资料)
institute ['institju:t] *v.*	着手，实行，开始；制定
submit [sʌbmit] *v.*	提交；委托，提出，提供
modem ['məudəm] *n.*	（无线电）调制解调器
written promise	书面承诺
opening / issuing bank	开证行
upon the request of	经……的要求
revocable L/C	可撤销信用证
irrevocable L/C	不可撤销信用证
clean L/C	光票信用证
confirmed L/C	保兑信用证
unconfirmed L/C	不可保兑信用证
transferable L/C	可转让信用证
acceptance L/C	承兑信用证
sight L/C	即期信用证
usance L/C	远期信用证
deferred payment L/C	延期支付信用证
back-to-back L/C	背对背信用证
revolving L/C	循环信用证

red clause L/C	红条款信用证
standby L/C	备用信用证
irrevocable L/C not confirmed	不保兑的不可撤销信用证
irrevocable confirmed L/C	保兑的不可撤销信用证
shipper's export declaration	托运人出口报关单

Notes

1．And they are more formally called documentary Ls/C because the banks handling the transaction deal in documents instead of in goods.

由于银行是根据单据而不是根据商品来处理交易的，所以信用证较正式地被称为跟单信用证。

2．Some countries such as the United States are in the course of instituting new procedures that will require exporters to submit their SEDs electronically, which involves using a computer with a modem and specially designed forms software.

一些国家如美国正在开始实行新程序，要求出口商以电子方式提交托运人出口报送单，这涉及使用带有调制解调器的计算机和专门设计的格式的软件。

Exercises

I．Translate the following Chinese terms into English

托运人出口报关单	保兑的不可撤销信用证	可转让信用证
远期信用证	光票信用证	不可保兑信用证
可撤销信用证	保兑信用证	不可撤销信用证
即期信用证	承兑信用证	被授权机构

II．Translate the following English terms into Chinese

written promise	issuing bank	irrevocable L/C not confirmed
transaction risks	standby L/C	deferred payment L/C
back-to-back L/C	red clause L/C	revolving L/C

III．Challenging questions for discussion

1．What is a letter of credit? Please list some main Ls/C.
2．What is the most commonly used L/C?
3．What is the shipper's export declaration? What does it function as?
4．What's the difference between credit note and debit note?

IV．Answer the questions according to the given letter of credit

FROM: INDUSTRIAL BANK OF JAPAN, LIMITED, TOKYO
TO: BANK OF CHINA, SHANGHAI

SQUENCE OF TOTAL: 27: 1/1

FORM OF DOC. CREDIT: 40A: IRREVOCABLE

DOCU. CREDIT NO.: 20: ILC136107800

DATE OF ISSUE: 31C: 101015

DATE N PLACE OF EXP.: 31D: 101215 IN THE COUNTRY OF BENEFICIARY

APPLICANT: 50: ABC COMPANY, 1-3 MACHI KU STREET, OSAKA, JAPAN

BENEFICIARY: 59: SHANGHAI DA SHENG CO., LTD. UNIT C 2/F JINGMAO TOWER, SHANGHAI ,CHINA.

CURRENCY CODE, AMOUNT:32B: USD21240.00

AVAILABLE WITH /.BY ... 41D: BANK OF CHINA BY NEGOTIATION

DRAFTS AT...: 42C: SIGHT FOR 100PCT INVOICE VALUE

DRAWEE: 42D: THE INDUSTRIAL BANK OF JAPAN,HEAD OFFICE

PARTIAL SHIPMENT: 43P: ALLOWED

TRANSSHIPMENT: 43T: NOT ALLOWED

LOAD/DISPATCH/TAKING :44A: SHANGHAI

TRANSPORTATION TO...: 44B: OSAKA/TOKYO

LATEST DATE OF SHIPMET: 44C: 101130

DESCRIP GOODS/SERVICE: 45A: 4,000 PCS “DIAMOND” BRAND CLOCK ART NO. 791 AT USD5.31 PER PIECE CIF OSAKA/TOKYO PACKED IN NEW CARTONS

DOCUMENTS REQUIRED: 46A: IN 3 FOLD UNLESS OTHERWISE STIPULATED:

1．SIGNED COMMERCIAL INVOICE.

2．SIGNED PACKING LIST.

3．CERTIFICATE OF CHINESE ORIGIN.

4. BENEFICIARY’S CERTIFICATE STATING THAT ONE SET OF ORIGINAL SHIPPING DOCUMENTS INCLUDING ORIGINAL “FORM A” HAS BEEN SENT DIRECTLY TO THE APPLICANT.

5. *COPY OF TELEX FROM APPLICANT TO SUPPLIERS APPROVING THE SHIPPING SAMPLE.

6．INSURANCE POLICY OR CERTIFICATE ENDORSED IN BLANK FOR 110 PCT OF CIF VALUE, COVERING W.P.A RISKS AND WAR RISKS.

7．2/3 PLUS ONE COPY OF CLEAN “ON BOARD” OCEAN BILLS OF LADING, MADE OUT TO ORDER AND BLANK ENDORSED MARKED “FREIGHT PREPAID” AND NOTIFY APPLICANT.

ADDITIONAL CONDITION:47A:

ALL DRAFTS DRAWN HEREUNDER MUST BE MARKED “DRAWN UNDER INDUSTRIAL BANK OF JAPAN, LTD., HEAD OFFICE, CREDIT NO. ILC136107800 DATED OCT.15, 2005” AND THE AMOUNT OF SUCH DRAFTS MUST BE ENDORSED ON THE REVERSE OF THIS CREDIT.

T/T REIMBURSEMENT IS NOT ACCEPTABLE

DETAILS OF CHARGES 71 B: ALL BANKING CHARGES OUTSIDE JANPAN ARE FOR BENEFICIARY'S ACCOUNT

PRESENTAION PERIOD 48: DOCUMENTS MUST BE PRESENTED WITHIN 15 DAYS AFTER THE DATE OF ISSUANCE OF THE SHIPPING DOCUMENTS BUT WITHIN THE VALIDITY OF THE CREDIT.

CONFIRMATION 49: WITHOUT

SPECIAL INSTRUCTION TO THE ADVISING BANK: ALL DOCUMENTS INCLUDING BENEFICIARY'S DRAFTS MUST BE SENT BY COURIER SERVICE DIRECTLY TO OUR HEAD OFFICE. MARUNOUCHI, CHIYODA-U, TOKYO, JAPAN 100, ATTN. INTERNATIOANL BUSINESS DEPT. IMPORT SECTION, IN ONE LOT. UPON OUR RECEIPT OF THE DRAFTS AND DOCUMENTS, WE SHALL MAKE PAYMENT AS INSTRUCTED BY YOU.

SEND. TO REC, INFO. 72: ACKNOWLEDGE RECEIPT

TRAILER ORDER IS

IT IS SUBJECT TO THE UNIFORM CUSTOMS AND PRACTICE FOR DOCUMENTARY CREDITS (2014 REVISION), INTERNATIONAL CHAMBER OF COMMERCE PUBLICATION NO.600.

根据上述信用证内容，回答下列问题：

1．本信用证的种类为（至少四种）_____。

2．该信用证的有效期、交单期分别为_____。

3．如果已装船提单的签发日为 11 月 15 日，则受益人最迟应在几月几日向银行交单？

4．该信用证项下，汇票的种类是谁？汇票的付款人是_____。

5．受益人应提交的单据种类及其份数为_____。

6．根据《跟单信用证统一惯例》（UCP600）的有关规定对标有“*”符号的部分内容进行分析，并指出这种条款对受益人的影响。

Chapter 13 Logistics Documents 2



Chapter Outline

Part I Transport Documents (1)

- Overview of Transport Documents
- Parties Involved in Shipping Documents
- Types of Shipping Documents
- Circulation of Shipping Documents
- Booking Note
- Shipping Order
- Stowage Plan
- Tally Sheet

Part II Transport Documents (2)

- Mate's Receipt
- Bill of Lading
- Functions of B/L
- Types of B/L
- Export Manifest
- Delivery Order

Part III Supplementary Reading: *Transport Documents (3)*

- Sea Waybill
- Air Waybill
- Multimodal Transport Document
- Rail Waybill
- Road Waybill
- Post Parcel Receipt and Courier Receipt
- Dock Receipt
- Comparative Table for the Functions of Transport Documents

Part I Transport Documents (1)

Overview of Transport Documents

Main types of transport documents

The carriage of the goods in international trade is an intricate matter. Interests of all parties concerned must be matched and considered carefully. These interests are best looked after by the proper administration that comprises the use of many different documents. Transport documents include shipper's letter of instruction, booking note, shipping order, mate's receipt, dock receipt, container load plan, bill of lading, delivery order, equipment interchange receipt, sea waybill, air waybill, railway bill, road waybill, cargo manifest, forwarders' certificate of receipt, forwarders' certificate of transport, etc.

Parties Involved in Shipping Documents

As far as maritime transport is concerned, the main **parties involved in the shipping documents** are the shipper or the consignor, the shipping company (the carrier), the shipping agent, the freight forwarder, the tally company, the stevedoring company, the consignee and the banks.

Types of Shipping Documents

Main types of shipping documents

Shipping documents take many forms, and usually are worked out and applied for various purposes in the whole process of maritime transport of goods. The shipping documents chiefly refer to such documents as booking note, shipping order, stowage plan, tally sheet, mate's receipt, cargo manifest, freight manifest, outturn report, bill of lading, and delivery order, etc. These documents serve as written evidence of handing and taking over cargo in each link of the chain of sea transport, and also as the necessary certificate for business connections of the parties concerned and demarcation of their respective responsibilities.

Circulation of Shipping Documents

The circulation of the relevant shipping documents is as follows:

Booking note

(1) The shipper (or consignor) makes an application to a shipping company or its agent for the shipment of goods by filling in **a booking note (B/N)**.

Shipping order

(2) After the acceptance of the booking note, the shipping company issues a **shipping order (S/O)** to the shipper, advising him of when and where to deliver the goods alongside the named ship.

(3) The shipper, on the strength of the S/O, goes through the customs declaration formalities for outward goods and gets the goods ready for shipment.

Loading list

(4) The agent prepares a **loading list** for the ship according to the S/O.

Stowage plan

(5) The chief officer works out a **stowage plan**. A number of copies are sent to the tally company and stevedoring company through the agent for the arrangement of loading and discharge.

Tally sheets

(6) The chief tallyman checks all goods loaded on board against the **tally sheets** and signs the S/O.

Mate's receipt

(7) The chief officer, by reference to the tally, endorses the S/O, which then automatically becomes the **mate's receipt (M/R)** to be issued to the shipper after loading.

Bill of lading

(8) After paying for the freight (prepaid), the shipper turns over the M/R to the shipping company or agent in exchange for the **bill of lading**.

(9) The shipper sends the B/L and other relevant documents to the bank for negotiation of payment.

Export manifest

Freight manifest

(10) The agent makes out for the ship a suitable number of copies of the **export manifest (M/F)** and **freight manifest (F/M)**, which are required by the customs at the local port as well as other ports of call.

(11) The consignee secures the B/L from the bank by effecting the payment for goods.

Delivery order

(12) The consignee presents the B/L to the shipping company or agent in exchange for the **delivery order (D/O)**, by which he takes delivery of goods at the warehouse.

Booking Note

Definition of booking note

Booking note is prepared by a shipper and countersigned by the carrier or his agent as a contract for the reservation of shipping space on the carrier's vessel for the transport of the shipper's cargo to a particular

Main elements on a booking note

destination. Booking note contains the detailed terms and conditions of the carriage contract including freight chargeable, description and dimensions of the goods to be carried, the name of the vessel to carry the goods, the mode of transport, the locality where the goods should be sent for loading, the time when the vessel is ready to receive the goods, the last date when the goods may be received by the vessel for loading, the port of destination of the goods, the type of transport document to be issued and, where applicable, the name of the consignee. The booking note is a contract document which imposes legal obligations and confers legal rights on the parties according to its terms. If the shipper fails to tender the stipulated goods for shipment at the designated place and time, he may forfeit any prepaid freight or be liable for damages. Similarly, if the shipper fulfills its obligations under the contract and the carrier defaults, the shipper may claim damages against the carrier.

Shipping Order

Definition of S/O

Shipping order is issued by the shipping line to a shipper with a confirmed space booking, authorizing the receiving clerk (cargo checker) at the container terminal or dock to receive a specified amount of goods from the named shipper. The shipping order typically contains the space booking number, names and addresses of the shipper and customs broker or freight forwarder, vessel and voyage number, sailing time, delivery date and location, customs closing date, and number and type of packages. The customs broker or freight forwarder usually requires the packing list of a consignment in order to book the shipping space and to obtain the shipping order and/or to prepare the dock receipt. The shipping order accompanies the dock receipt and the deliverer of the goods presents these two and other documents that may be required in the delivery to the receiving clerk at the closing location. In certain countries, only the space booking number is needed instead of a formal shipping order, since the information in an shipping order is found in the dock receipt.

Main elements on a shipping order

Stowage Plan

Definition of stowage plan

Stowage plan is a completed diagram of a ship's cargo space showing what cargo has been loaded and its exact stowage location in each hold, tweendeck, or other space in a ship, including deck space. Each port of discharge is indicated by a particular color or other symbol; deck and

tweendeck cargo is shown in perspective (top view), cargo stowed in the lower hold is shown in profile (side view), but vehicles are shown in perspective (top view), regardless of stowage. A good stowage plan has to consider many different factors including ship stability, cargo movement handling cost, cargo types and their port of destinations, etc. All cargo is shown on the stowage plan in metric tons and measurement tons (CBM). The stowage plan helps organize loading so that the cargo is accessible for unloading and quickly identifies the location and type of cargo for any given port.

Tally Sheet

Definition of tally sheet

Tally sheet is issued by the tally company after its counting the quantity of the goods in the course of loading and discharging the cargoes. Tally can be divided into tally on shore and tally on board ships. The tally company tallies cargoes on behalf of the cargo owner to check or keep record of all cargo loaded into and discharged from a vessel. This is an essential part of cargo work in order to prevent claims on the ship for so-called short discharge, i.e. when some of the cargo is missing. The crew of the ship can sometimes tally cargoes for the shipping company, and it is sometimes customary for the shipper or consignee to provide his own tally clerks.

New Words and Expressions

intricate ['intrikət] *adj*.	复杂的，错综的，缠结的，难懂的
comprise [kəm'praiz] *v*.	包括，包含，组成，构成
demarcation [ˌdi:mɑ:'keiʃn] *n*.	划界，划定界限，限界
circulation [ˌsɜ:kjə'leiʃn] *n*.	流通，循环，发行量
alongside [əlɔŋ'said] *prep*.	与……并排，在……旁边
endorse [in'dɔ:s] *v*.	背面签字，背签
countersign ['kaʊntəsain] *v*.	副署，连署，确认
forfeit ['fɔ:fit] *v*.	没收，丧失
default [di'fɔ:lt] *v*.	疏怠职责，违约
diagram ['daiəgræm] *n*.	图解，图表，简图
hold [həuld] *n*.	货舱，船舱
tweendeck ['twi:nˌdek] *n*.	甲板间舱，二层舱
accessible [ək'sesib(ə)l] *adj*.	易于得到的，易于进入的，可处理的
shipper's letter of instruction	出口货物托运委托书
booking note	订舱单

shipping order	装货单
mate’s receipt	收货单（大副收据）
dock receipt	集装箱场站收据
container load plan	集装箱装箱单
delivery order	提货单
equipment interchange receipt	设备交接单
sea waybill	海运单
air waybill	航空运单
rail waybill	铁路运单
road waybill	公路运单
cargo manifest	货物舱单
forwarders’ certificate of receipt	货代收货证明
forwarders’ certificate of transport	货代运输证明
shipping document	海运单证
maritime transport	海上运输
stowage plan	积载图
tally sheet	理货单
freight manifest	运费舱单
outturn report	卸货报告
written evidence	书面证明
handing and taking over cargo	交接货物
business connections	业务关系，业务联系
customs declaration formalities	海关报关手续
outward goods	出港货物
get the goods ready for shipment	货物备妥待运
loading list	装货清单
chief officer / mate	大副
chief tallyman	理货组长
negotiation of payment	议付
shipping space	舱位，舱容
mode of transport	运输方式
shipping line	航运公司
container terminal	集装箱码头
short discharge	短卸

Notes

1. Each port of discharge is indicated by a particular color or other symbol; deck and tweendeck cargo is shown in perspective (top view), cargo stowed in the lower hold is shown in profile (side view), but vehicles are shown in perspective (top view), regardless of stowage.

每个卸货港均用特定的颜色或其他标志标明；甲板货和二层甲板货用正视图标明，下舱（底舱）的货物用侧视图标明，但车辆不管装在何处，均用正视图标明。

Exercises

I. Translate the following Chinese terms into English

订舱单	收货单	集装箱装箱单	航空运单
提货单	短卸	海运单证	海上运输
装卸公司	理货单	卸货报告	业务关系
装货清单	议付	运输方式	公路运单

II. Translate the following English terms into Chinese

shipper's letter of instruction	shipping order	dock receipt
equipment interchange receipt	rail waybill	cargo manifest
forwarders' certificate of receipt	tally company	freight manifest
forwarders' certificate of transport	stowage plan	written evidence
handing and taking over cargo	outward goods	chief tallyman
customs declaration formalities	chief mate	shipping line
get the goods ready for shipment	shipping space	container terminal

III. Challenging questions for discussion

1. What are the main types of transport documents?
2. What are the main types of shipping documents?
3. How do the relevant shipping documents circulate?
4. Is a shipping order the necessary document used to go through the customs formalities?

IV. Be familiar with each column of the shipping documents in Appendix11-12

Part II Transport Documents (2)

Mate's Receipt

Definition of M/R

Mate's receipt is a document issued by the first mate (i.e. the chief officer) of a vessel, who is responsible for cargo, in the name of the shipping company evidencing receipt of a shipment onboard the vessel and stating the quantity, identifying marks and the apparent condition of the goods. If there are any damages to the goods before loading, this will be recorded on the receipt, and it is no longer "clean". It is not a document of title and is issued as an interim measure until a proper bill

of lading can be issued. That is, mate's receipt will be issued by the first mate after the goods is tallied into the ship by tally clerks. The shipper or his representative will then take the mate's receipt to the master or the agent to exchange it for a bill of lading, which will incorporate any conditions inserted into the mate's receipt. Nowadays, Mate's receipt is not often signed by the mate of the ship but by some person in the shore office of the shipping company or its agents, although the name of the document remains the same.

Bill of Lading

Definition of B/L

Bill of lading (B/L) is a transport document issued by the carrier or its agent to the shipper admitting that goods have been received for shipment to a particular destination and stating the terms on which the goods are to be carried. With a B/L, the consignor can come to the bank for negotiation, and the holder of which can get the goods at the port of destination from the carrier. The B/L, together with the insurance policy and commercial invoices, constitutes the chief documents indispensable to international trade and logistics activities. A B/L is usually negotiable and widely used in maritime transport.

Elements of B/L

A B/L mainly contains the following parts: the name of the shipping company (the carrier), the name of the shipper who is usually the exporter or its agent, the name of the consignee, the notify party, the name of the carrying vessel and the voyage no., the two ports (i.e. the port of loading and the port of discharge), marks and numbers, description of goods, kinds of packages, gross weight, measurement, freight and charges (freight prepaid or freight collect), number of original B/L, the signature of the carrier, and the B/L issuing place and date.

Functions of B/L

Receipt of goods
Evidence of contract of carriage
Title document

When the goods are transported by vessel, the **marine or ocean B/L** is one of the most important shipping documents. A bill of lading functions as **a receipt of goods** by the carrier evidencing receipt of the goods from the consignor, **evidence of a contract of carriage** between the shipper and the carrier containing the conditions on which transport is made, and **a document of title to the goods** in the sense that the lawful holder/owner of the B/L is the lawful owner of the goods and the carrier will only release the goods at the stipulated port of destination against the presentation of the original B/L.

Types of B/L

Bills of lading (Bs/L) are of many kinds, and can be classified into the following categories in accordance with different criteria.

(1) In terms of whether or not the goods are on board

Shipped B/L

Shipped B/L (or On Board B/L) is issued by the carrier or its agent when all the goods are loaded on board the ship, and must bear the name of the ship and the date of shipment.

Received for shipment B/L

Received for Shipment B/L is issued by the carrier or its agent when the goods are under his control before loaded on board the ship. The importer does not favor it, and usually the L/C will require the exporter to present shipped B/L for negotiation at the bank. However, with the development of container transport, received for shipment Bs/L are being increasingly applied.

(**2) On the basis of the apparent condition of goods noted**

Clean B/L

When the shipping company writes on the B/L "The goods loaded are in apparent good order", this B/L is a **Clean B/L** or an **Unclaused B/L**.

Unclean B/L

When the shipping line gives such an indication as "The goods loaded are not in apparent good order" or "The packing is broken or … is polluted, etc.", this B/L is an **Unclean B/L** or a **foul B/L** or a **claused B/L**, and non-negotiable at the bank.

(3) In the light of different characteristics of consignees

Straight B/L

Straight B/L has a specified name in the column of consignee, which means that the goods can only be received by the specified person and the B/L cannot be transferred to a third person. So it is also called non-negotiable B/L，and thus it is not commonly used in international trade and normally applies to high-value shipments or goods for special purposes.

Order B/L

Order B/L does not have a specified name but the phraseology of "To order", or "To the order of …" in the column of consignee. This kind of B/L can be transferred to others by endorsement, thus called negotiable B/L, and widely used in international trade.

Open B/L

Open B/L has neither the consignee's name nor the phraseology of "To order" fill in the column of consignee. This type of B/L is also called negotiable B/L, and can be negotiable without endorsement, and ownership of the goods passes when the B/L is handed over to anyone. Owing to the exceedingly high risk involved, this B/L is rarely used.

(4) In accordance with modes of transport

Direct B/L

Under **Direct B/L**, the goods will be directly carried to the port of

destination without transshipment.

Transshipment

Under **Transshipment B/L**, the goods will be transshipped in transit.

Through B/L

Through B/L is a development of these two Bs/L. Under Through B/L, the goods will at least be carried by two different modes of transport as sea-land or land-sea and taken charge of by different carriers during transport before arriving at the port of destination.

Combined Transport B/L

A multimodal transport operator responsible for the whole voyage issues **Combined Transport B/L**, involving two or more different kinds of transport. This kind of B/L is usually used in container transport and may be a Received for Shipment B/L, but a Through B/L must be a Clean Shipped B/L.

(5) In conformity with the detailed or simplified clauses

Long form B/L

Long Form B/L has detailed clauses printed on its back concerning the transport of goods so as to solve any possible transport disputes.

Short form B/L

Short Form B/L does not have such clauses on its back. However, if such wording as “all transport clauses are based on the long form B/L of our company” is stamped on the back of a short form B/L, this B/L is equal to a long form one and will be accepted by the bank for negotiation.

(6) In compliance with the types of vessel

Liner B/L

Liner B/L is issued by the carrier when the goods are shipped on a regular liner vessel with scheduled route and reserved berth at destination. Its obvious advantage is that the carrier can advise the shipper, before or shortly after the sea voyage, of the estimated time of departure (ETD) and the estimated time of arrival (ETA) so that the importer will also be informed that the goods are dispatched and will arrive on a set date. The majority of B/L is liner B/L.

Charter party B/L

Charter party B/L is issued by a charterer of a ship to the exporter. The terms of the B/L are subject to the charter party between the shipowner and the charterer. A charter B/L usually contains such wordings “subject to the charter party”. Banks normally will not accept a charter B/L unless stated otherwise in the credit. This type of B/L is not very popular in international trade.

Export Manifest

Definition of export manifest

Export manifest is a document containing the lists of goods to be loaded onboard a ship and giving the description of a ship’s cargo. It gives the details of each consignment such as the maritime transport

document reference, e.g. the bill of lading number; the container identification number; the number, kinds, marks and numbers of the packages; the description and gross weight/volume of the goods; the port or place where the goods were loaded on to the ship; the original port or place of shipment for goods on a maritime transportation document.

Delivery Order

Definition of D/O

Delivery order is an order from a shipping line to the terminal superintendent for the release of goods to a consignee following payment of freight charges. It is the necessary document to go through the importing country's customs formalities and the evidence of taking delivery of the goods.

New Words and Expressions

interim ['ɪntərɪm] *adj.*	中间的，暂时的，临时的
incorporate [ɪn'kɔ:pəreɪt] *v.*	合并，使组成公司，具体表现
negotiable [nɪ'gəʊʃɪəbl] *adj.*	（票据、证券等）可转让的，可议付的
release [rɪ'li:s] *v.*	放行，释放，解除，免除
category ['kætəgəri] *n.*	种类，类别，类目，类型
specify ['spesifai] *v.*	指定，具体说明，详细说明
column ['kɑ:ləm] *n.*	（报纸的）栏，（印刷）栏
phraseology [ˌfreizi'ələdʒi] *n.*	表达方式，用语，措词，术语
berth [bɜ:θ] *n.*	泊位，停泊地，靠泊
superintendent [ˌsu:pərin'tendənt] *n.*	监督人，管理人，所长
original B/L	正本提单
marine or ocean B/L	海运提单，远洋提单
receipt of goods	货物收据
evidence of contract of carriage	运输合同的证明
document of title to the goods	货物所有权凭证，物权凭证
lawful holder	合法持有人
shipped B/L	已装船提单
received for shipment B/L	备运提单
clean B/L	清洁提单
unclean B/L (foul B/L)	不清洁提单
non-negotiable B/L	不可转让提单，不可流通提单
claused B/L	附有条款提单，不清洁提单
straight B/L	记名提单
order B/L	指示提单

negotiable B/L	可转让提单，可流通提单
open B/L	不记名提单
direct B/L	直达提单，直运提单
transshipment B/L	转船提单
through B/L	联运提单
combined transport B/L	多式联运提单
multimodal transport operator	多式联运人
long form B/L	全式提单，繁式提单，详式提单
short form B/L	简式提单，略式提单
liner B/L	班轮提单
scheduled route	预定路线，预定航线
estimated time of departure (ETD)	预计离开时间
estimated time of arrival (ETA)	预计抵达时间
charter party B/L	租船提单
charter party	租船契约
export manifest	出口舱单
container identification number	集装箱识别码，集装箱号码
maritime transportation document	海运单证
terminal superintendent	码头监管人员
freight charge	运费

Notes

1. and usually the L/C will require the seller to present shipped B/L for negotiation at the bank　且通常，信用证要求卖方到银行议付时提交已装船提单

2. on the basis of the apparent condition of goods noted　根据所批注的货物外观状况

3. in apparent good order　外观状况良好

4. a multi-modal operator responsible for the whole voyage issues combined Transport B/L　由负责全程运输的联运人签发联运提单

5. to solve any possible transport disputes　解决任何可能的运输纠纷

6. Its obvious advantage is that the carrier can advise the shipper, before or shortly after the sea voyage, of the estimated date of departure (ETD) and the estimated time of arrival (ETA) so that the importer will also be informed that the goods are dispatched and will arrive on a set date.

其明显的一个优势就是承运人能够在航行之前或之后立即联系托运人，告知预计开船日和预计到港日，这样进口商也可以获知货物已经发出并将于固定日抵达。

Exercises

I. Translate the following Chinese terms into English

海运提单　　货物收据　　已装船提单　　直达提单

清洁提单	指示提单	不记名提单	联运提单
全式提单	预定航线	多式联运人	班轮提单
租船契约	运费	海运单证	预计抵达时间

II. Translate the following English terms into Chinese

evidence of contract of carriage	original B/L	lawful holder
container identification number	claused B/L	short form B/L
document of title to the goods	straight B/L	transshipment B/L
received for shipment B/L	negotiable B/L	non-negotiable B/L
combined transport B/L	charter party B/L	export manifest
estimated time of departure	terminal superintendent	foul B/L

III. Judge whether the following statements are true or false

1. A B/L is a contract of carriage in which the shipping company promises to transport the goods received to the destination required.

2. An Order B/L may be negotiable after being endorsed.

3. On the back of short form B/L, there are rights and obligations of the consignor and the carrier.

4. A Through B/L means that the goods will at least be carried by two different modes of transport.

5. Received for Shipment B/L is generally favored by the buyer.

IV. Challenging questions for discussion

1. Which of the following document is used to exchange the bill of lading, the shipping order, the mate's receipt or the tally sheet?

2. What is a bill of lading?

3. What functions does the marine B/L perform?

4. How many types of marine B/L are mentioned in this part? How should they be distinguished from each other?

5. Why is a Straight B/L not negotiable?

V. Make out the B/L according to the L/C given below, and with reference to Appendix 13-14

Irrevocable documentary credit

Number: LC123-258866

Date: August 24, 2014

Date and place of expiry: October 30, 2014, Shanghai, China

Advising bank: Bank of China

Beneficiary: China xyz import and export corp.

Applicant: UVW corporation
Total amount: USD9 000 (SAY US DOLLARS NINE THOUSAND ONLY)
Shipment from: Shanghai China
To: Osaka Japan
At the latest: October 15, 2014
Description of goods: 100% Cotton Towel as per S/C No. CH200
Total quantity:8 000pieces
Packing:800 Cartons
Total gross weight: 20 000kgs
Total measurement: 30CBM
Price term: CIF Osaka
Following documents required:
+Signed commercial invoice in three copies.
+Full set of clean on board ocean bill of lading made out to order and endorsed in blank and marked “freight prepaid” and notify applicant.
+Insurance policy for 110 PCT of the invoice value covering the Institute Cargo Clauses (A), the Institute War Clauses.
Ocean Vessel: “Golden star” Voy. No.: 018E
Container No.: GSTU3156712/20’
Marks & Nos.: ITOCHU OSAKA NO.1-800
LADEN ON BOARD THE VESSEL: October 14, 2014
B/L date: October 15, 2014
B/L signed by BBB shipping agency
Carrier: AAA Shipping Co.

Part III Supplementary Reading

Transport Documents (3)

Sea Waybill

Receipt of goods and contract of carriage

A **sea waybill** is a transport document issued by a shipping company as an alternative to a B/L. It only performs two functions of a B/L, that is, as a receipt of goods and a contract of carriage. In other words, unlike the bill of lading, a sea waybill is not a document of title to the goods or a negotiable document, and thus can only be made out to a named consignee, i.e. the seaway bill obliges the carrier to deliver the goods to the consignee named in the document. Hence there is no need for the consignee to present any transport document at the port of discharge, as

long as he can identify himself as the party named as consignee in the sea waybill, the carrier's only responsibility in this connection is to exercise due diligence when confirming the identity of the person claiming to be the consignee, which can speed up processing at the port of discharge. The sea waybill is suitable for short traffics, because the traditional bill of lading would arrive after the goods have reached their destination. Most of the goods shipped on the Atlantic route is done under the sea waybill.

Air Waybill

Definition of an AWB

An **air waybill (AWB)** is a transport document issued by an airline used for the air transport of goods. That is, it is an air consignment note used for the carriage of goods by air.

Difference between AWB and marine B/L

The air waybill is approximately equivalent to the ocean B/L, but it is not a document of title to goods or a negotiable instrument in the same way as is an ocean B/L because the cargo would arrive at the destination airport days or sometimes weeks before the air waybill's arrival via the banking system. Therefore, the consignee is allowed to take delivery of the goods before receiving the air waybill.

Functions of an AWB

Each air waybill has three originals and at least 6 copies. The air waybill must be accurately completed, and clear and complete forwarding instructions must be given to the airline or agent for efficient service. The air waybill mainly functions as a receipt of the goods for dispatch, evidence of the contract of carriage between the carrier and the consignor, a freight bill specifying the charges respectively borne by the consignor and the agent, and a source document for clearance.

Common use of standard AWB

The airline industry has adopted a standard formatted air waybill that accommodates both domestic and international traffic. The standard document was designed to enhance the application of modern computerized systems to air freight processing for both the carrier and the shipper.

Multimodal (or Combined)Transport Document (MTD or CTD)

Definition of MTD

A **multimodal transport document** evidences the contract of carriage of goods by at least two modes of transport, such as shipping by rail and by sea, issued by a multimodal transport operator under a multimodal transport contract.

Difference between MTD and through B/L

Multimodal transport document is quite similar to through B/L and combined transport B/L used for ocean transport, but is broader than them. Though B/L and combined transport B/L are always connected with sea, used for any transport combined with sea, while multimodal transport document may be applied to any kind of combined transport，not necessarily connected with sea transport. Several carriers are involved in through B/L, while multimodal transport document is issued by only one carrier, that is, multimodal transport operator. Multimodal transport document can be either negotiable or non-negotiable, and usually non-negotiable.

Rail Waybill

Definition of railway bill

A **rail waybill,** also called **consignment note for rail transport** or **railway cargo receipt**, serves as the contract of carriage between the railway and consignor, evidencing the receipt of the goods and the date of acceptance for carriage by the carrier. The rail waybill will be delivered with the cargo from the departure station to the consignee at the destination station against payment of the amounts by the consignee. A duplicate is given to the shipper as a receipt for acceptance of the goods. Unlike B/L, it is not a document of title and is not negotiable. The rail waybill is subject to the International Convention for the Transport of Goods by Rail (CIM).

Road Waybill

Definition of road waybill

A **road waybill**, also called **consignment note for road transport** or **CMR consignment note,** which is similar to rail waybill in form and contents, stands for the contract for the carriage of goods by road in vehicles, completed by the sender and the carrier with the appropriate signatures and/or stamp. Like rail waybill, it evidences the place and date of taking over the goods and the place designated for delivery. It is not a transferable document or document of title either, and is subject to the Convention on Contract for the International Carriage for Goods by Road (CMR).

Post Parcel Receipt and Courier Receipt

Definition of post parcel receipt

The **post parcel receipt** is issued by the post office for goods sent by post. It is both a receipt and evidence of dispatch, but it is not a

document of title and goods should be consigned to the party specified in the credit.

Definition of courier receipt

When the goods are sent by a courier or an express delivery service, a **courier receipt** will be issued. The worldwide famous express services are EMS, DHL, UPS and Federal Express. This mode of transport will be chosen when the goods are of the greatest concern. Courier service, especially the express delivery services，provide desk to desk service.

Dock Receipt

Definition of dock receipt

Dock receipt is a receipt issued by a port officer or warehouse supervisor to confirm receipt of the goods on the quay or warehouse before shipment from the domestic carrier or the consignor. The dock receipt is used to transfer responsibility when the export goods is moved by the domestic carrier to the port of shipment and left with the international carrier for movement to its final destination.

Comparative Table for the Functions of Transport Documents

Types of modes of transport

In international trade, there are many kinds of modes of transport, such as marine transport, air transport, rail transport, and road transport. Different transport documents are applicable to different modes of transport, and they may be a receipt of goods or a contract of carriage or the document of title to goods. The following is a comparative table for the functions of some transport documents.

Comparative Table for the Functions of Transport Documents

Type of Document	Mode of Transport	Receipt	Contract of Carriage	Document of Title
Marine / Ocean B/L Port to Port	Marine Transport	Yes	Yes	Yes
Non-negotiable Sea Waybill	Marine Transport	Yes	Yes	No
Chartered B/L	Marine Transport	Yes	Subject to Charter Party	Subject to Charter Party
Multimodal Transport Document	At least two modes of transport used	Yes	Yes	Yes or No
Air Waybill	Air Transport	Yes	Yes	No
Rail WayBill	Rail Transport	Yes	Yes	No
Road Waybill Truck Waybill	Road Transport	Yes	Yes	No

续表

Type of Document	Mode of Transport	Receipt	Contract of Carriage	Document of Title
Post Parcel Receipt	Post service	Yes	Yes	No
Courier Receipt	Courier service and express delivery service	Yes	Yes	No

New Words and Expressions

Identify [ai'dentifai] *v.* 识别，认明，鉴定
identity [ai'dentəti] *n.* 相同，身分，一致
instrument ['instrəmənt] *n.* 文件，证券，契约，票据
dispatch [di'spætʃ] *n.* 发送，发运
accommodate [ə'kɔmədeit] *v.* 适应，装载（乘客），招待
computerize [kəm'pju:təraiz] *v.* （使）电子计算机化
wagon ['wægən] *n.* （铁路的）)无盖货车
acceptance [ək'septəns] *n.* 接受，验收，（商业）承兑，认付（期票）
duplicate ['dju:plikət] *n.* 复本，抄件，副本，副件
courier ['kuriə(r)] *n.* 信使，急件递送人
quay [ki:] *n.* 码头，埠头
table ['teib(ə)l] *n.* 表（格），目录
be equivalent to 等于，相当于
triplicate copy 第三副本
exercise due diligence 克尽职责
short traffics 短途运输
Atlantic route 大西洋航线
consignment note 发货通知书；托运单
carriage of goods by air 航空运输
forwarding instructions 货运指示
freight bill 运费单（据）
source of document for clearance 用于清关的源单据
document for clearance 结关单据
multimodal transport document （多式）联运单据
multimodal transport contract 多式联运合同
combined transport 多式联运
post parcel receipt 邮政收据，邮包收据
express delivery service 快递服务，快件服务
courier receipt 专递收据
dock receipt 码头收据，码头收货单

port authority	港口当局，港务局
take delivery of	提货

Notes

1. The air waybill is approximately equivalent to the ocean B/L, but it is not a document of title to goods or a negotiable document in the same way as is an ocean B/L.

空运单近似地等同于海运提单，但它不像海运提单一样是货物所有权凭证或是可议付票据。

2. The airline industry has adopted a standard formatted air waybill that accommodates both domestic and international traffic. The standard document was designed to enhance the application of modern computerized systems to air freight processing for both the carrier and the shipper.

目前各航空公司已经普遍采用了一种适应国内国际运输的标准的格式化空运提单。这种标准化单证旨在提高承运人和托运人对空运货物的现代化计算机系统的应用水平。

3. issued by a multimode transport operator under a multimode transport contract　由多式联运人根据多式联运合同签发

4. The rail waybill will be delivered with the cargo from the departure station to the consignee at the destination station against payment of the amounts by the consignee.

收货人付款后，铁路运单将连同货物从始发站运送到目的站的收货人。

5. International Convention for the Transport of Goods by Rail (CIM) 《国际铁路货物运输公约》

6. A road waybill which is similar to railway bill in form and contents, stands for the contract for the carriage of goods by road in vehicles, completed by the sender and the carrier with the appropriate signatures and/or stamp.

形式和内容都与铁路运单相似的公路运单代表发货人与承运人之间签订的、并有正确的签字和/或盖章的公路车辆运输合同。

7. Convention on Contract for the International Carriage for Goods by Road (CMR)《国际公路货物运输公约》

8. EMS, DHL, UPS and Federal Express　这是四大快递公司的名称，其中：EMS(Express Mail Service)是指邮政特快专递服务；DHL（DHL Worldwide Express）敦豪速递公司，是由三位美国人 Adrian Dalsey，Larry Hillblom 及 Robert Lynn（姓氏之首个英文字母 D,H 及 L）首创的空运速递业务，提供户对户空运速递服务；UPS（United Parcel Service of America）联合包裹服务公司；FEDEX（Federal Express）是指联邦快递。

9. Dock receipt is a receipt maybe issued by a Port Authority to confirm receipt of the goods on the quay or warehouse before shipment.

码头收据是一种可由港务机关签发的、确认在码头或码头仓库收到了待装运的货物的收据。

10. The dock receipt is used to transfer responsibility when an exported commodity is moved by the domestic carrier to the port of shipment and left with the international carrier for movement to its final destination.

当出口货物被国内承运人送到装货港，并交给国际承运人运往最终目的地时，码头收据

被用来转移责任。

Exercises

I. Translate the following Chinese terms into English

多式联运	发货通知书	多式联运合同	快递服务
专递收据	码头收据	（多式）联运单据	提货
港务局	结关单据	大西洋航线	短途运输

II. Translate the following English terms into Chinese

carriage of goods by air　　exercise due diligence
forwarding instructions　　source of document for clearance
Express Mail Service　　DHL Worldwide Express
Federal Express　　United Parcel Service of America
consignment note for rail transport
Convention on Contract for the International Carriage for Goods by Road
International Convention for the Transport of Goods by Rail international traffic

III. Challenging questions for discussion

1. In what way is a B/L different from an air waybill?
2. What is the multimode transport document?
3. In what way is an MTD different from a through B/L?
4. What's the function of a dock receipt?

IV. Be familiar with each column of the transport documents in Appendix 15-17

Appendix 1　Logistics Terms

A

ABC classification ABC 分类管理
activity based costing (ABC)作业基础成本法
access control 存取控制
accounting cost 会计成本
advanced label imaging system (ALIS)先进标签影像系统
advanced Planning and Scheduling (APS)先进规划与排程
aggregate shipments 合并出货
article reserves 物品储备
aisle management 信道管理
automatic warehouse 自动化仓库
automatic guided vehicle (AGV)自动导引车
automated storage and retrieval system(ASRS)自动化仓储系统

B

back order 迟延订单，延期交货
bar code 条形码
bar code scanner 条形码扫描机
basing point pricing 基准点订价法
batch processing 批处理
bill of materials (BOM)物料用量清单
bonded warehouse 保税仓库
box car 箱式车
buffer stock 缓冲存货
bullwhip effect 牛鞭效应
business process reengineering (BPR)企业流程再造
business process improvement (BPI)企业流程改进

C

capacity requirements planning (CRP)能力需求规划
cargo under custom’s supervision 海关监管货物
cargo tracking 货物追踪
CFS (container freight station)集装箱货运站
chill space 冷藏区

combined transport 联合运输
containerized transport 集装运输
container transport 集装箱运输
containerization 集装箱化
CRP (continuous replenishment program)连续库存补充计划
CAO (computer assisted ordering)计算机辅助订货系统
conveyor 输送机
cross docking 直接换装，越库
customized logistics 定制物流
customs broker 报关行
customs declaration 报关
cycle stock 经常库存

D
de-containerization 散装化
distribution center 配送中心
distribution logistics 销售物流
distribution processing 流通加工
DRP (distribution requirements planning)分销需求计划，配送需要计划
DRP II (distribution resource planning)配送资源计划
door-to-door 门到门
drop and pull transport 甩挂运输

E
EOQ (economic order quantity)经济订货批量
ECR (efficient customer response)有效客户反映
EDI (electronic data interchange)电子数据交换
EOS (electronic order system)电子订货系统
ERP (enterprise resource planning)企业资源计划
environmental logistics 绿色物流
export supervised warehouse 出口监管仓库
external logistics 社会物流

F
fixed inteval inventory model 定期存货模式
FQS (fixed-quantity system)定量订货方式
FS (fixed-quantity system)定期订货方式
fork lift truck 叉车
freeze space 冷冻区

full container load (FCL)整箱货

G

GPS (global positioning system)全球定位系统
goods collection 集货
goods shed 料棚
goods shelf 货架
goods yard 货场

H

handing/carrying 搬运
humidity controlled space 控湿储存区

I

intangible loss 无形消耗
internal logistics 企业物流
international logistics 国际物流
international freight forwarding agent 国际货运代理
international transportation cargo insurance 国际货物运输保险
inventory 库存
inventory control 库存控制
inventroy count sheet 存货盘点表
inventory cycle time 库存周期

J

JIT (just in time)准时制
just-in-time logistics 准时制物流

L

land bridge transport 大陆桥运输
LIFO (last-in first-out)后进先出
lead time 前置期（或提前期）
LCL (less than container load)拼箱货
LTL (less than truckload)零担货运
logistics activity 物流活动
logistics alliance 物流联盟
logistics center 物流中心
logistics cost 物流成本
logistics cost control 物流成本管理

logistics document 物流单证
logistics information 物流信息
logistics management 物流管理
logistics network 物流网络
logistics operation 物流作业
logistics technology 物流技术
LRP (logistics resource planning)物流资源计划
logistics strategy 物流战略
logistics strategy management 物流战略管理

M
MRP (material requirements planning)物料需求计划
MRP II (manufacturing resource planning)制造资源计划
military logistics 军事物流

N
neutral packing 中性包装

O
order cycle time 订货处理周期
order picking 拣选
outsourcing 业务外包

P
package/packaging 包装
packing of nominated brand 定牌包装
pallet 托盘
production logistics 生产物流

Q
QR (quick response)快速反应

R
receiving 收货区
Returned logistics 回收物流

S
safety stock 安全库存
sales package 销售包装

shipping space 发货区
shipping agency 租船代理
shipping by chartering 租船运输
sorting 分拣
stacking 堆码
stereoscopic warehouse 立体仓库
storage 保管
storing 储存
SCM (supply chain management)供应链管理
supply logistics 供应物流

T
tangible loss 有形消耗
tally 理货
temperature controlled space 温度可控区
TEU (twenty-feet equivalent unit)换算箱，标准箱
TPL (third-party logistics)第三方物流
through transport 直达运输
transfer transport 中转运输
transport package 运输包装
transportation 运输

U
unit loading and unloading 单元装卸

V
value-added logistics service 增值物流服务
VMI (vendor managed inventory)供应商管理库存
virtual logistics 虚拟物流
virtual warehouse 虚拟仓库

W
warehouse management 仓库管理
warehouse layout 仓库布局
waste material logistics 废弃物物流
weight utilization factor 重量利用系数
weight tolerance 重量公差
weight-bulk ratio 重量-体积比

Z

zero stock 零库存

zero-inventory logistics 零库存技术

zone of rate freedom 运费自由区

zone picking 区域拣货

Appendix 2　Global Sea Ports

A

Aalborg 奥尔堡（丹麦）
Aalesund 奥勒松（挪威）
Aarhus 奥胡斯（丹麦）
Abadan 阿巴丹（伊朗）
Abidjan 阿比让（科特迪瓦）
Abu Dhabi 阿不扎比（阿联酋）
Acajutla 阿卡胡特拉（萨尔瓦多）
Acapulco 阿卡普尔科（墨西哥）
Accra 阿克拉（加纳）
Adelaide 阿德莱德（澳大利亚）
Aden 亚丁（也门）
Agana 阿加尼亚（关岛）
Alexandria 亚历山大（埃及）
Algiers 阿尔及尔（阿尔及利亚）
Amsterdam 阿姆斯特丹（荷兰）
Ancona 安科纳（意大利）
Annaba 安纳巴（阿尔及利亚）
Antofagasta 安托法加斯塔（智利）
Antwerp 安特卫普（比利时）
Aomen[Macao] 澳门（中国）
Apapa 阿帕帕（尼日利亚）
Apia 阿皮亚（西萨摩亚）
Aqaba[Akaba] 亚喀巴（约旦）
Arica 阿里卡（智利）
Arkhangelsk 阿尔汉格尔斯克（俄罗斯）
Aseb[Assab] 阿萨布（埃塞俄比亚）
Athens 雅典（希腊）
Aukland 奥克兰（新西兰）
Avenmouth 阿芬默斯（英国）

B

Bahia Blanka 布兰卡（阿根廷）
Baltimore 巴尔的摩（美国）
Bandar Abbas 阿巴斯港（伊朗）
Bandar Khomeini 霍梅尼港（伊朗）
Bandar Seri Begawan 斯里巴加湾市（文莱）
Bangkok 曼谷（泰国）
Banjarmaisn 马辰（印尼）
Banjul 班珠尔（冈比亚）
Bar 巴尔（南斯拉夫）
Barcelona 巴萨罗那（西班牙）
Barranquilla 巴兰基亚（哥伦比亚）
Basra 巴士拉（伊拉克）
Bassein 勃生（缅甸）
Bata 把塔（赤道几内亚）
Beihai 北海（中国）
Beira 贝拉（莫桑比克）
Beirut 贝鲁特（黎巴嫩）
Belawan 勿拉湾（印尼）
Belfast 贝尔法斯特（英国）
Belize 伯利兹（伯利兹）
Belmopan 贝尔莫潘（伯利兹）
Benghazi 班加西（利比亚）
Berbera 柏培拉（索马里）
Bergen 卑尔根（挪威）
Berne 伯尔尼（瑞士）
Bilbao 毕尔巴鄂（西班牙）
Birkenhead 伯肯赫德（英国）
Bissau 比绍（几内亚比绍）
Bizerta 比塞大（突尼斯）
Boma 博马（扎伊尔）
Bombay 孟买（印度）
Bordeaux 波尔多（法国）
Boston 波斯顿（美国）
Bourgas 布尔加斯（保加利亚）
Bremen 不来梅（德国）
Bremerhaven 不来梅港（法国）

Brest 布雷斯特（法国）
Brisbane 布里斯班（澳大利亚）
Bristol 布里斯托尔（英国）
Buenaventura 布埃纳文图拉（哥伦比亚）
Buenos Aires 布宜诺斯艾利斯（阿根廷）

C

Cagliari 卡利亚里（意大利）
Calcutta 加尔各答（印度）
Callao 卡亚俄（秘鲁）
Cape Town 开普敦（南非）
Caracas 加拉加斯（委瑞内拉）
Cardiff 卡迪夫（英国）
Cartagena 卡赫纳（哥伦比亚）
Casablanca[Dar el Beida] 卡萨布兰卡（摩洛哥）
Cebu 宿务（菲律宾）
Charleston 查尔斯顿（美国）
Cheribon 井里文（印尼）
Chiba 千叶（日本）
Chicago 芝家哥（美国）
Chimbote 钦博特（秘鲁）
Chittagong 吉大港（孟加拉国）
Chongjin 清津（朝鲜）
Coatzacoalcos 夸察夸尔科斯（墨西哥）
Colombo 科伦坡（斯里兰卡）
Colon 科隆（巴拿马）
Conakry 科纳克里（几内亚）
Coonstantza 康斯坦萨（罗马尼亚）
Copenhagen 哥本哈根（丹麦）
Corinto 科林托（尼加拉瓜）
Cork 科克（爱尔兰）
Cotonou 科托努（贝宁）
christ Church 克莱斯特切奇（新西兰）
Crotone 克努托内（意大利）
Cumana 库马纳（委内瑞拉）

D

Dacca 达卡（孟加拉国）
Dakar 达喀尔（塞内加尔）
Dalian 大连（中国）
Damman 达曼（沙特阿拉伯）
Da Nang 岘港（越南）
Dar el-Beida[Casablanca] 达尔贝达（摩洛哥）
Darwin 达尔文（澳大利亚）
Dar-es-Salaam 达累斯萨拉姆（坦桑尼亚）
Djakarta 雅加达（印尼）
Djibouti 吉布提（吉布提）
Doha 多哈（卡塔尔）
Dordrecht 多德雷赫特（荷兰）
Douala 杜阿拉（喀麦隆）
Dubai 迪拜（阿联酋）
Dublin 都柏林（爱尔兰）
Dunedin 打尼丁（新西兰）
Dunkirk 敦刻尔克（英国）
Durresi 都拉斯（阿尔巴尼亚）

E

East London 东伦敦（南非）

F

Fredericia 腓特烈西亚（丹麦）
Fredrikstad 腓特烈斯塔（挪威）
Free Town 弗里敦（塞拉利昂）
Freemantle 弗里曼特尔（澳大利亚）
Fuzhou 福州（中国）

G

Gaoxiong 高雄（中国台湾）
Gdansk 格但斯克（波兰）
Gdynia 格丁尼亚（波兰）
Geelong 吉朗（澳大利亚）
Genoa 热那亚（意大利）
Georgetown 乔治敦（圭亚那，加拿大）
Gibraltar 直布罗陀（西班牙）
Gijon 希洪（西班牙）
Glasgow 格拉斯哥（英国）

Godthab 戈特霍布（格陵兰）
Goteborg 哥德堡（瑞典）
Guangzhou 广州（中国）
Guayaquil 瓜亚基尔（厄瓜多尔）
Guaymas 瓜伊马斯（墨西哥）

H
Haifa 海法（以色列）
Hai-Phong 海防（越南）
Hakodate 函馆（日本）
Halifax 哈里法克斯（加拿大）
Halmstad 哈尔姆斯塔德（瑞典）
Hamburg 汉堡（德国）
Hanoi 河内（越南）
Havana 哈瓦那（古巴）
Helsinki 赫尔辛基（芬兰）
Hiroshima 广岛（日本）
Hongay 鸿基（越南）
Hongkong 香港（中国）
Honolulu 火奴鲁鲁（美国）
Houston 休斯敦（美国）
Hudaydak Al 荷台达（也门）
Hull 赫尔（英国）
Hungnam 兴南（朝鲜）

I
Iloilo 伊洛伊洛[怡朗]（菲律宾）
Iquique 伊基克（智利）
Istanbul 伊斯坦布尔（土耳其）
Izmir[Smyrna] 伊兹密尔（土耳其）

J
Jakarta 雅加达（印尼）
Jidda 吉达（沙特阿拉伯）
Jilong 基隆（中国台湾）

K
Kagoshima 鹿儿岛（日本）
Kakinada 卡基纳达（印度）
Kampong Saon 磅逊（柬埔寨）
Karachi 卡拉奇（巴基斯坦）
Khulna 库尔纳（孟加拉国）
Kiel 基尔（德国）
Kingston 金斯敦（牙买加，加拿大）
Kismayu 基斯马尤（索马里）
Kobe 神户（日本）
Kuala Lumpur 吉隆坡（马来西亚）
Kuching 吉晋（马来西亚）
Kuwait 科威特（科威特）

L
Lagos 拉各斯（尼日利亚）
La Conuna 拉科鲁尼亚（西班牙）
La Guaina 拉瓜伊拉（委内瑞拉）
La Rouchelle 拉罗歇尔（法国）
La Spezia 拉斯佩齐亚（意大利）
La Plata 拉普拉塔（阿根廷）
Latakia 拉塔基亚（叙利亚）
Le Havre 勒阿佛尔（法国）
Leghorn[Livorno] 莱戈恩（意大利）
Leninggrad 列宁格勒（俄罗斯）
Lianyungang 连云港（中国）
Libreville 利伯维尔（加蓬）
Limassol 利马索尔（塞浦路斯）
Limon 里蒙（哥斯达黎加）
Lisboa[Lisbon] 里斯本（葡萄牙）
Liverpool 利物浦（英国）
Lome 洛美（多哥）
London 伦敦（英国）
Long Beach 长滩（美国）
Los Angeles 洛杉矶（美国）
Luanda 罗安达（安哥拉）
Lubeck 卢贝克（德国）
Lyttelton 利特尔顿（新西兰）

M
Macao 澳门（中国）
Majunga 马任加（马达加斯加）

Makasa 望加锡（印尼）
Malabo 马拉博（赤道几内亚）
Malacca 马六甲（马来西亚）
Malaga 马拉加（西班牙）
Male 马累（马尔代夫）
Malindi 马林迪（肯尼亚）
Malmo 马尔默（瑞典）
Malta 马耳他（马耳他）
Manama,Al 麦纳麦（巴林）
Manila 马尼拉（菲律宾）
Maputo 马普托（莫桑比克）
Maracaibo 马拉开波（委瑞内拉）
Mar del Plata 马德普拉塔（阿根廷）
Marseilles 马塞（法国）
Massawa 马萨瓦（埃塞俄比亚）
Matadi 马塔迪（扎伊尔）
Matanzas 马坦萨斯（古巴）
Mazatlan 马萨特兰（墨西哥）
Melbourne 墨尔本（澳大利亚）
Menado 万鸦老（印尼）
Mersin 梅尔辛（土耳其）
Messina 墨西拿（意大利）
Miami 迈阿密（美国）
Milford 米尔福德港（英国）
Mobile 莫比尔（美国）
Mogadisho[Mogadiscio] 摩加迪沙（索马里）
Mokpo 木浦（朝鲜）
Mombasa 蒙巴萨（肯尼亚）
Monrovia 蒙罗维亚（利比里亚）
Montevideo 蒙特维的亚（乌拉圭）
Montreal 蒙特利尔（加拿大）
Mokalla,Al 穆卡拉（也门）
Moulmein 毛淡棉（缅甸）
Murmansk 莫尔曼斯克（俄罗斯）
Muscat 马斯喀特（阿曼）

N

Nagasaki 长崎（日本）
Nagoya 名古屋（日本）
Naha 那霸（日本）
Nakhodka 纳霍德卡（俄罗斯）
Nampo 南浦（朝鲜）
Nantes 南特（法国）
Naples[Napoli] 那不勒斯（意大利）
New Orleans 新奥尔良（美国）
New York 纽约（美国）
New Castle 纽卡斯尔(澳大利亚，美国)
New Heaven 纽黑文（美国）
Nicosia 尼科西亚（塞浦路斯）
Niigata 新泻（日本）
Ningpo 宁波（中国）
Norfolk 诺福克（美国）
Nouakchott 努瓦克肖特（毛里塔尼亚）
Noumea 努美阿（新喀里多尼亚）

O

Oakland 奥克兰（美国）
Odessa 傲德萨（乌克兰）
Oran[Ouakran] 奥兰（阿尔及利亚）
Osaka 大阪（日本）
Oslo 奥斯陆（挪威）
Oulu 奥卢（芬兰）

P

Palembang 巨港（印尼）
Panama City 巴拿马城（巴拿马）
Papeete 帕皮提（波利尼西亚）
Paramaribo 帕拉马里博（苏里南）
Penang 槟城（马来西亚）
Philadelphia 费城（美国）
Piraeus 比雷埃夫斯（希腊）
Plaia 普拉亚（佛得角）
Ploce 普洛切（南斯拉夫）
Plymouth 普列茅斯（英国）
Pointe Noire 黑角（刚果）
Port-au-Prince 太子港（海地）
Port Elizabeth 伊利沙白港（南非）

Port Gentil 让蒂尔港（加蓬）
Port Harcourt 哈科特港（尼日利亚）
Port Headland 黑德兰港（澳大利亚）
Port Kelang 巴生港（马来西亚）
Portland 波特兰（美国）
Port Louis 路易港（毛里求斯）
Port Moresby 莫尔兹比港（巴布亚新几内亚）
Port Alegre 阿雷格里港（巴西）
Port of Spain 西班牙港（特立尼达和多巴哥）
Port Novo 波多诺夫（贝宁）
Port Said 塞科港（埃及）
Port Sudan 苏丹港（苏丹）
Port Victoria 维多利亚港（塞舌尔）
Portsmouth 朴次茅斯（英国）
Prince Rubert 鲁伯特王子港（加拿大）
Puerto Cabello 卡贝略港（委内瑞拉）
Puerto Cortes 科尔特斯港（洪都拉斯）
Punta Arenas 蓬塔阿雷纳斯（智利）
Puntarenas 蓬塔雷纳斯（哥斯达黎加）
Pusan 釜山（韩国）

Q
Qingdao 青岛（中国）
Qinhuangdao 秦皇岛（中国）
Quebec 魁北克（加拿大）

R
Rabat 拉巴特（摩洛哥）
Rangoon 仰光（缅甸）
Recife 累西非（巴西）
Reykjavik 雷克雅未克（冰岛）
Riga 里加（拉托维亚）
Rijeka 里耶卡（南斯拉夫）
Rio de Janeiro 里约热内卢（巴西）
Rostock 罗斯托克（德国）
Rotterdam 鹿特丹（荷兰）

S
Safaga 萨法加港（埃及）
Safi 萨费（摩洛哥）
Saigon 西贡（越南）
Salonica 萨洛尼卡（希腊）
Salvador 萨尔瓦多（巴西）
San Diego 圣跌戈（美国）
San Francisco 旧金山（美国）
San Juan 圣胡安（波多黎哥，秘鲁）
Sandakan 山打根（马来西亚）
Santiago 圣地亚哥（古巴）
Santo Dominga 圣多明各（多米尼加）
Santos 桑拖斯（巴西）
Savanah 萨凡纳（美国）
Seattle 西雅图（美国）
Semarang 三宝垄（印度）
Setubel 塞图巴尔（葡萄牙）
Sfax 斯法克斯（突尼斯）
Shanghai 上海（中国）
Shantou 汕头（中国）
Shekou 蛇口（中国）
Shenzhen 深圳（中国）
Singapore 新加坡（新加坡）
Songkhla 宋卡（泰国）
Southampton 南安浦敦（英国）
Split 斯普利特（南斯拉夫）
St.John's 圣约翰斯（加拿大）
Stockholm 斯德哥尔摩（瑞典）
Suez 苏伊士（埃及）
Surabaja 泗水（印尼）
Suva 苏瓦（斐济）
Sydney 悉尼（澳大利亚）
Szczecin 什切青（波兰）

T
Taipei 台北（中国台湾）
Tallin 塔林（爱沙尼亚）
Tamatave[Toamasina] 塔马塔夫（马达加斯加）

Tampa 坦帕（美国）
Tampico 坦皮科（墨西哥）
Tandjung Priok 丹戎不碌（印尼）
Tanga 坦葛（坦桑尼亚）
Tangier 丹吉尔（摩洛哥）
Taranto 塔兰托（意大利）
Tatus 塔尔图斯（叙利亚）
Tel Aviv 特拉维夫（以色列）
Tema 特马（加纳）
Tianjin 天津（中国）
Toamasina 图阿马西纳（马达加斯加）
Tokyo 东京（日本）
Toleary 图莱亚尔
Toronto 多伦多（加拿大）
Toulon 土伦港（法国）
Trieste 的里雅斯特（意大利）
Trineomalee 亭克马里（斯里兰卡）
Tripoli 的黎波里（黎巴嫩，利比亚）
Tunis 突尼斯（突尼斯）
Turku 图尔库（芬兰）

V
Vaasa 瓦萨（芬兰）
Valletta 瓦莱塔（马耳他）
Valona 法罗拉（阿尔巴尼亚）
Valparaiso 瓦尔帕莱索（智利）
Vancouver 温哥华（加拿大）
Verna 瓦尔纳（保加利亚）
Venice 威尼斯（意大利）
Veracruz 韦腊克鲁斯（墨西哥）
Victoria 维多利亚（塞舌尔，加拿大）
vila 维拉港（瓦努阿图）
Vladivostok 海参威（俄罗斯）

W
Valvis Bay 沃尔维斯湾（纳米比亚）
Wellington 惠灵顿（新西兰）
Wenzhou 温州（中国）
Wismar 维斯马（德国）
Wonsan 元山（朝鲜）

X
Xiamen[Amoy] 厦门（中国）

Y
Yantai 烟台（中国）
Yokohama 横滨（日本）

Z
Zanzibar 桑给巴尔（坦桑尼亚）
Zhanjiang 湛江（中国）
Zhuhai 珠海（中国）

Appendix 3　Export Licence of the People's Republic of China

中华人民共和国出口许可证

EXPORT LICENCE OF THE PEOPLE'S REPUBLIC OF CHINA

<table>
<tr><td colspan="2">1. 出口商：
Exporter</td><td colspan="2"></td><td colspan="2">3. 出口许可证号：
Exporter licence No.</td></tr>
<tr><td colspan="2">2. 发货人：
Consigner</td><td colspan="2"></td><td colspan="2">4. 出口许可证有效截止日期：
Export licence expiry date
年　月　日</td></tr>
<tr><td colspan="4">5. 贸易方式：
Forms of trade</td><td colspan="2">8. 进口国（地区）：
Country/Region of purchase</td></tr>
<tr><td colspan="4">6. 合同号：
Contract No.</td><td colspan="2">9. 付款方式：
Payment</td></tr>
<tr><td colspan="4">7. 报关口岸：
Place of clearance</td><td colspan="2">10. 运输方式：
Mode of transport</td></tr>
<tr><td colspan="6">11.唛头—包装件数
Marks & numbers—number of packages</td></tr>
<tr><td colspan="6">12. 商品名称：　　商品编码：
Code of goods</td></tr>
<tr><td>13. 规格、等级
Specification</td><td>14. 单位
Unit</td><td>15. 数量
Quantity</td><td>16. 单价（USD）
Unit Price</td><td>17. 总值（USD）
Amount</td><td>18. 总值折美元
Amount in USD</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>19. 总计
Total</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="3">20. 备注
Supplementary details</td><td colspan="3">21. 发证机关签章
Issuing authority's stamp & signature
22. 发证日期
Licence date　　年　月　日</td></tr>
</table>

商务部监制　　本证不得涂改，不得转让

Appendix 4 Original

一般原产地证书

ORIGINAL

<table>
<tr><td colspan="2">1. Exporter（full name and address）</td><td colspan="5" rowspan="2">CERTIFICATE NO.
CERTIFICATE OF ORIGIN
OF
THE PEOPLE’S REPUBLIC OF CHINA</td></tr>
<tr><td colspan="2">2. Consignee（full name, address, country）</td></tr>
<tr><td colspan="2">3. Means of transport and route</td><td colspan="5" rowspan="2">5. For certifying authority use only</td></tr>
<tr><td colspan="2">4. Country / region of destination</td></tr>
<tr><td>6. Marks and numbers</td><td>7. Number and kind of packages description of goods</td><td>8. H.S.Code</td><td>9. Quantity</td><td>10. Number and date of invoices</td></tr>
<tr><td colspan="3">11. Declaration by the exporter
The undersigned hereby declares that the above details and statement are correct; that all the goods were produced in China and that they comply with the Rules of Origin of the People’s Republic of China.</td><td colspan="3">12. Certification
It is hereby certified that the declaration by the exporter is correct.</td></tr>
<tr><td colspan="3">Place and date, signature and stamp of authorized signatory</td><td colspan="3">Place and date, signature and stamp of certifying authority</td></tr>
</table>

Appendix 5　Generalized System of Preferences Certificate of Origin

普惠制原产地证书

ORIGINAL

<table>
<tr><td colspan="3">1. Goods consigned from (Exporter's business name, address, country)</td><td colspan="3" rowspan="2">Reference No:
GENERALIZED SYSTEM OF PREFERENCES
CERTIFICATE OF ORIGIN
(Combined declaration and certificate)
FORM A
Issued in THE PEOPLE'S REPUBLIC OF CHINA
（country）
See Notes, overleaf</td></tr>
<tr><td colspan="3">2. Goods consigned to(Consignee's name, address, country)</td></tr>
<tr><td colspan="3">3. Means of transport and route(as far as known)</td><td colspan="3">4.For official use</td></tr>
<tr><td>5. Item number</td><td>6. Marks and numbers of packages</td><td>7. Nunber and kind of packages; description of goods</td><td>8. Orign crite-rion（see Notes overleaf）</td><td>9. Gross weight or other quantity</td><td>10.Number and date of invoices</td></tr>
<tr><td colspan="3">11. Certification
It is hereby certified, on the basis of control carried out, that the declaration by the exporter is correct.

Place and date, signature and stamp of certifying authority</td><td colspan="3">12. Declaration by the exporter
The undersigned hereby declares that the above details and statements are correct; that all the goods were produced in CHINA
（country）
and that they comply with the origin requirements specified for those goods in the Generalized System of Preferences for goods exported to

（importing country）

Place and date, signature of authorized signatory</td></tr>
</table>

Appendix 6　Inspection Certificate



中华人民共和国上海进出口商品检验局

SHANGHAI IMPORT & EXPORT COMMODITY

INSPECTION BUREAU

OF THE PEOPLE'S REPUBLIC OF CHINA



地址：上海市中山东一路 13 号
Address:13,Zhongshan Road
（E.1），Shanghai

No.

检　验　证　书

INSPECTION CERTIFICATE

日期
Date

电话：
Tel:86-21-32155296

收 货 人：
Consignee:
发 货 人：
Consignor:
品　名：
Commodity:
报验数量/重量：
Quantity/Weight
Declared:
运　输：
Transportation:
进口日期：
Date of Arrival:
卸毕日期：
Date of Completion
of Discharge:
发 票 号：
Invoice No.:
合 同 号：
Contract No.:
标记及号码：
Mark & No.:

注意：本证书译文如有任何异点，概以中文为准。
（N.B. In case if divergence, the Chinese text shall be regarded as authentic）



中华人民共和国上海进出口商品检验局

SHANGHAI IMPORT & EXPORT COMMODITY INSPECTION BUREAU

OF THE PEOPLE'S REPUBLIC OF CHINA



地址：上海市中山东一路 13 号　　No.

Address:13,Zhongshan Road

（E.1），Shanghai　　检 验 证 书

INSPECTION CERTIFICATE　　日期

Date

电话：

Tel:86-21-32155296

发 货 人：

Consignor……

收 货 人：

Consignee:……:……

品　名：　　标记及号码：

Commodity……..Mark & No.

报验数量/重量：

Quantity/Weight

Declared……..

官方兽医证明如下：

1．The undersigned Official Veterinarian, certify that ……

主 任 兽 医

Chief Veterinarian

Appendix 7　Bill of Exchange

BILL OF EXCHANGE

凭　　信用证

Drawn under……L/C　NO. …….

日期

Dated……支取　　Payable with interest　@__%__按__息__付款

号码　　汇票金额　　上海

NO.……. Exchange for　　Shanghai……20……

见票……日后（本汇票之正本未付）付交

At…… sight of this **SECOND** of Exchange（First of Exchange being unpaid）Pay to the order of

金额

The　　sum of

此致：

To……

……

Appendix 8　Commercial Invoice

上海市纺织品进出口公司
SHANGHAI TEXTILES IMPORT & EXPORT CORPORATION
27 CHUNGSHAN ROAD E .1 .
SHANGHAI, CHINA
TEL：86-21-65342517　FAX：86-21-65724743

COMMERCIAL INVOICE

TO: M/S.

号码
No:_____

售货合约号码
Sales Confirmation No._____

日 期
Date_____

装船口岸　　目的地
From_____　　To_____

信用证号数　　开证银行
Letter of Credit No._____　　Issued by_____

唛号 Marks & Nos	货名数量 Quantities & Descriptions	总值 Amount

上海市纺织品进出口公司
Shanghai Textiles Import & Export Corporation
SHANGHAI, CHINA

We certify that the goods
are of Chinese origin.

Appendix 9 Customs Invoice

Revenue Canada
Customs and Excise

Revenu Canada
Douanes et Accise

CANADA CUSTOMS INVOICE
FACTURE DES DOU ANES CANADIENNE

1 Vendor(Name and Address) /Verdeur (Name et adresse).		**2 Date of Direct Shipment to Canada**/Date d'expedition directe vers le Canada **3 Other References (Include Purchaser's Order No.)** Autres refer ences (Include le n de commande de l' acheteur)		
4 Consignee (Name and Address) /Destinataire (Nom et adresse)		**5 Purchaser's Name and Address** (if other than Consignee) Nom et adresse de l'acheteur (S'il differe du destinataire)		
		6 Country of Transhipment/Pays de transbordement		
		7 Country of Origin of Goods Pays d'origine des marchandises	IF SHIP MENT INCLUDS GOODS OF DIFFERENT ORIGINS ENTER ORIGINS AGAINST ITEMS IN 12.	
8 Transportation Give Mode and Place of Direct Shipment to Canada Transport Preciser mode et point d'expedition directe Vers le Canada		**9 Conditions of Sale and Terms of Payment** (i.e. Sale, Consigrment Shipment. Leased Goods, etc.) Conditions de venteet modalites de paiement (p.ex.vente, expedition en consignation, location de marchan-dises.etc.)		
		10 Currency of Settlement/Devises du paiement		
11 No of Pkgs ND'e De colis	**12 Specificadion of Commo dities** (Kind of Packages, Marks and Numbers, General Description and Char acteristics, ie. Grade, Quality	**13 Quantity** (State Unit) (Preciser I' unite)	Selling Price/Prix de vente **14 Unit Price** Prix unitaire	**15 Total**
18 If any offields 1 to 17 are incbuded on an attached comm ercial invoice. Check this box Cammercial Invoice No._____ ☐		**16 Total Weight/Paids Total** Net	Gross/Bru	**17 Invoice Total**
19 Exporter's Name and Address (If other than Vendor) Nom et adresse de l' exportatur (S'il deffere du vendeur)		**20 Originaotor** (Name and Address) /Expediteur d' origine (Nom et adresse)		
21 Departmendal Ruling (If applicable) /Decision du Ministere (S'il ya lieu)		**22 If fields 23 to 25 are not applicable, check this box** Siles zones 23 a 25 sont sans object, cocher cette boite ☐		
23 If included in field 17 indicate amount Si compris dans le total a la zone 17. Preciser (i)Transportation charges, expenses and insurance from the place of direct shipment to $_____ (ii)Costs for construction, erection and assembly incurred afer importation into Canada. $_____ (iii)Export packing $_____	**24 If not included in field 17 indicate amount** Sinon copris dans le total a la zone 17 preciser (i)Transportation charges, Expenses and insurance to the place of direct shipment to Canada. $_____ (ii)Amounts for commissions other than buying commissions. $_____ (iii)Export packing $_____	**25 Check (If applicable):** Cocher (S'ily a; ieu): (i)Royalty payments or subsequent proceeds are paid or payable by the purchaser. ☐ (ii)The purchaser has supplied goods or services for use in the production of these goods. ☐		

DEPARTMENT OF NATIONAL REVENUE CUSTOMS AND EXCISE MINISTERE DU REVENU NATIONAL DOUANES ET ACCISE

Appendix 10　Insurance Policy

中 国 人 民 保 险 公 司
THE PEOPLE'S INSURANCE COMPANY OF CHINA
总公司设于北京　　一九四九年创立
Head Office:BEIJING　　Established in 1949

保 险 单　　号次
INSURANCE POLICY　　No.SH02/304246

中 国 人 民 保 险 公 司（ 以 下 简 称 本 公 司 ）
This Policy of Insurance witnesses that The People's Insurance Company of China（hereinafter called
根 据
"the Company"),at the request of ----------
（以下简称"被保险人"）的 要 求，由 被 保 险 人 向 本 公 司 缴 付 约 定
（ hereinafter called "the Insured"） and in consideration of the agreed premium paid to the Company by the
的 保 险费，按 照 本 保 险 单 承 保 险 别 和 背 面 所 载 条 款 与 下列
insured, undertakes to insure the undermentioned goods in transportation subject to the conditions of this Policy
条 款 承 保 下 述 货 物 运 输 保 险，特 立 本 保 险 单。
as per the Clause printed overleaf and other special clauses attached hereon.

标　记 Marks & Nos.	包装及数量 Quantity	保险货物项目 Description of Goods	保险金额 Amount Insured
As per Invoice No.			

总保险金额：
Total Amount Insured：_____
保　费　　费率　　装载运输工具
Premium：as arranged　　Rate as arranged　　Per conveyance S.S._____
开行日期　　自　　至
Slg.on or abt. As Per B/L　　From _____ to _____
承保险别
Conditions

所保货物，如遇出险，本公司凭本保险单及其他有关证件给付赔款。
Claims, if any, payable on surrender of this Policy together with other relevant documents.
所保货物，如发生本保险单项下负责赔偿的损失或事故，
In the event of accident whereby loss or damage may result in a claim under this Policy immediate notice applying
应立即通知本公司下述代理人查勘。
For survey must be given to the Company's Agent as mentioned hereunder:
赔款偿付地点
Claim payable at _____
日期　　上海　　**中国人民保险公司上海分公司**
Date _____Shanghai　　THE PEOPLE'S INSURANCE CO. OF CHINA
地址：中国上海中山东一路 23 号。　　SHANGHAI BRANCH
Address: 23 Zhongshan Dong Yi Lu Shanghai, China.
Cables: 42001 Shanghai.
Telex: 33128 PICCS CN　　*General Manager*

Appendix 11　Booking Note

THE NAME AND ADDRESS OF BENEFICARY

托运单 BOOKING NOTE

（1）收货人：Consignee
（2）通知人：Notify

（17）提单号：B/L No.：
（18）船名VSL：
（19）编号NO：
（20）日期Date：
（21）起运地Loading Port：
（22）装运地Destination：

（3）标记 Shipping Marks:	（4）件数 Quantity:	（5）货名 Description of Goods:	（6）净重 N/W	毛重 G/W	（7）尺码 Measurement:

（23）特殊条款 Special Conditions:

（8）可否分批
（9）可否转船
（10）装船期限
（11）结汇期限

（13）正本
（14）副本
（15）货存地点
（16）运费缴付方式

（12）运费吨：　　运费率：　　运费金额：

NAME OF BENEFICIARY AND SIGNATURE

Appendix 12　Shipping Order

中 国 外 轮 代 理 公 司

CHINA OCEAN SHIPPING AGENCY

装 货 单

SHIPPING ORDER

托运人

Shipper_____

编号　　船名

No._____　　S/S_____

目的港

For_____

兹将下列完好状况之货物装船后希签署收货单

Receive on board the undermentioned goods apparent in good order and condition and sign the accompanying receipt for the same

标 记 及 号 码 Marks & Nos	件　数 Quantity	货　名 Description of Goods	重量（千克） Weight Kilos	
			净 重 Net	毛 重 Gross

共 计 件 数（大　写）

Total Number of Package in Writing

日期　　时间

Date_____　　Time _____

装入何舱

Stowed_____

实　收

Received_____

理货员签名　　经 办 员

Tallied by_____　　Approved by_____

Appendix 13 Mate's Receipt

中 国 外 轮 代 理 公 司

CHINA OCEAN SHIPPING AGENCY

收 货 单

MATE'S RECEIPT

托运人

Shipper_____

编号 船名

No._____ S/S_____

目的港

For_____

兹将下列完好状况之货物装船后希签署收货单

Receive on board the undermentioned goods apparent in good order and condition and sign the accompanying receipt for the same

标 记 及 号 码 Marks & Nos	件 数 Quantity	货 名 Description of Goods	重 量（千克） Weight Kilos	
			净 重 Net	毛 重 Gross

共 计 件 数（大 写）

Total Number of Package in Writing

日期 时间

Date_____ Time _____

装入何舱

Stowed_____

实 收

Received_____

理货员签名 大 副

Tallied by_____ Chief Officer_____

Appendix 14　Bill of Lading for Combined Transport

货

海运提单

托运人 Shipper		SINOTRANS　B/L　No. 中国对外贸易运输总公司 北京BEIJING 联　运　提　单 COMBINED TRANSPORT BILL OF LADING **RECEIVED** the foods in apparent good order and condition as specified below unless otherwise stated herein, THE Canier, in accordance with the provisions contained in this document: 1）undertakes to perform or to procure the performance of the entire transport form the place at which the goods are taken in charge to the place designated for delivery in this document, and 2）assumes liability as prescnbed in this document for such transport One of the bills of lading must be surrendered duty indorsed in exchange for the goods or delivery order	
收货人或指示 Consignee or order			
通知地址 Notify Address			
前段运输 Pre-carriage by	收货地点 Place of Receipt		
海运船只 Ocean Vessel	装货港 Port of Loading		
卸货港 Port of Discharge	交货地点 Place of Delivery	运费支付地 Freight payable at	正本提单份数 Number of original Bs/L
标志和号码　件数和包装种类　货　名　毛重（千克）　尺码（立方米） Marks and Nos. Number and kind of packages Description of goods Gross weight（kgs.） Measurement（m^3）			
以上细目由托运人提供 ABOVE PARTICULARS FURNISHED BY SHIPPER			
运费和费用 Freight and charges		IN WITNESS where of the number of original bills of Lading stated above have been signed, one of which being accomplished, the other(s) to be void.	
		签单地点和日期 Place and date of issue	
		代表承运人签字 Signed for or on behalf of the carrier	
			代　理 as Agents

Appendix 15　Dock Receipt

集装箱场站收据 Dock Receipt

Shipper （发货人）	D/R No.（编号） 场站收据
Consignee （收货人）	Received by the Canier the Total number of containers or other packages or units stated below to be transported subject to the terms and conditions of the carrier's regular form of Bill of Loading(for Comb illed Transport or port to Port Shipment) which shall be deemed to be incorporated herein. Date（日期）：
Notify Party （通知人）	
Pre carriage by（前程运输） Place of Receipt（收货地点）	
Ocean vessel（船名） Voy No.（航次） Port of Loading（装货港）	场站章
Port of Discharge（卸货港） Place of delivery（交货地点）	Final Destination for Merchant's References（目的地）

particulars Furdshed by Merchants

Container No.（集装箱号）	Seel No.（封志号）Mark & Nos.（标记与号码）	No. of Containers or Pkgs.（箱数或件数）	Kind of Packages; Description of Goods（包装种类与货名）	Gross Weight 毛重（千克）	Measurement 尺码（立方米）
TOTAL NUMBER OF CONTAINERS OR PACKAGES(IN WORDS)集装箱数或件数合计（大写）					

Container No.（箱号） Seal No.（封志号） Pkgs.（件数） Container No.（箱号） Seal No.（封志号） Pkgs.（件数）

Received（实收） By Terminal clerk（场站员签字）

FREIGHT & CHARGES	Prepaid at（预付地点）	Payable at（到付地点）	Place of Issue（签发地点）	
	Total Prepaid（预付总额）	No. of Original B(S)/L（正本提单份数）	BOOKING（订舱确认）APPROVED BY	

Service Type on Receiving ☐-CY,☐-CFS,☐-DOOR	Service Type on delivery ☐-CY,☐-CFS,☐-DOOR	Reefer Temperature Required.（冷藏温度）	°F	℃
TYPE OF GOODS（种类）	☐Ordinary,☐Reefer,☐Dangerous,☐Auto.（普通） （冷藏） （危险品） （裸装车辆） ☐Liquid,☐Live Animal,☐Bulk,☐_____（液体） （活动物） （散货）	危险品	Class: Property: IMDG Code Page: UN NO.	

Appendix 16　Shipper's Letter of Instruction for Air Transportation

中 国 民 用 航 空 局
THE CIVIL AVIATION ADMINISTRATION OF CHINA
国 际 货 物 托 运 书
SHIPPER'S LETTER OF INSTRUCTION

<table>
<tr><td colspan="2" rowspan="2">托运人姓名及地址
SHIPPER'S NAME AND ADDRESS
1</td><td>托运人账号
SHIPPER'S ACCOUNT NUMBER</td><td colspan="3">供承运人用
FOR CARRIAGE USE ONLY</td></tr>
<tr><td rowspan="2"></td><td>班期/日期
FLIGHT/DATE</td><td>航期/日期
FLIGHT/DATE</td></tr>
<tr><td colspan="2"></td><td colspan="2">6</td></tr>
<tr><td colspan="2" rowspan="2">收货人姓名及地址
CONSIGNEE'S NAME AND ADDRESS
2</td><td>收货人账号
CONSIGNEE'S ACCOUNT NUMBER</td><td colspan="3">已预留吨位
BOOKED</td></tr>
<tr><td></td><td colspan="3">运费　CHARGES</td></tr>
<tr><td colspan="3">代理人的名称和城市
ISSUING CARRIERS AGENT NAME AND CITY
3</td><td colspan="3" rowspan="3">ALSO NOTIFY</td></tr>
<tr><td colspan="3">始发站　AIRPORT OF DEPARTURE
4</td></tr>
<tr><td colspan="3">到达站　AIRPORT OF DESTINATION
5</td></tr>
<tr><td colspan="2">托运人声明价值
SHIPPERS DECLARED VALUE</td><td rowspan="2">保险金额
AMOUNT OF INSURANCE
XXX</td><td colspan="3" rowspan="2">所附文件
DOCUMENT TO ACCOMANY AIR WAYBILL
7</td></tr>
<tr><td>运输费用
FOR CARRIAGE NVD</td><td>供海关用
FOR CUSTOMS
NCV</td></tr>
<tr><td colspan="6">处理情况（包括包装方式、货物标志及号码）
HANDLING INFORMATION (INCL METHOD OF PACKING IDENTIFING AND NUMBERS)
11</td></tr>
<tr><td>件数
NO.OF PACKAGES</td><td>实际毛重
ACTUAL G.W.(KG.)</td><td>运价种类
RATE CLASS</td><td>收费重量
CHARGEABLE WEIGHT</td><td>费率
RATE CHARGE</td><td>货物品名及数量（包括体积或尺寸）
NATURE AND QUANTITY OF GOODS (INCL DIMENSION OF VOLUME)</td></tr>
<tr><td>8</td><td>9</td><td></td><td></td><td></td><td>10</td></tr>
</table>

Appendix 17 Air Waybill

(1)		
Shipper's Name and Address	Shipper's Account Number	Not Negotiable **Air Waybill** ISSUED BY 中国国际航空公司 AIR CHINA BEIJING CHINA
(2)		Copies 1,2 and 3 of this Air Waybill are originals and have the same validity.
Consignee's Name and Address	Consignee's Account Number	It is agreed that the goods described here in are accepted in apparent good order and condition (except as noted) for carriage SUBJECT TO THE CONDITIONS OF CONTRACT ON THE REVERSE HEREOF. ALL GOODS MAY BE CARRIED BY ANY OTHER MEANS INCLUDING ROAD OR ANY OTHER CARRIER UNLESS SPECIFIC CONTRARY INSTRUCTIONS ARE GIVEN HEREON BY THE SHIPPER. AND SHIPPER AGREES THAT THE SHIP-MENT MAY BE CARRIED VLAINTERYEDLATE STOPPING PLACES WHICH THE CARRIER DEEMS APPROPRLATE. THE SHIPPER'S ATTENTTON IS DRAWN TO THE NOTTCE CONCERNING CARRIER'S LIMITATION OF LLABILITY. Shipper may increase such limitation of liability by declaring a higher value for carriage and paying a supplemental charge ifrequire.
(3)		
Issuing Carrier's Agent Name and City (4)		Accounting Information
Agent's IATA Code	Account No.	
Airport of Dep arture(Addr. Of First Carrier) and Requested Routing (5)		Reference Number / Optional Shipping Information

TO	By First Carrier / Routing and Destination	to	by	to	by	Currency	CHGS	WT/VAL PPD	WT/VAL COLL	OTHER PPD	OTHER COLL	Declared Value for Carriage NCD	Declare Vahie for Customs NVV

Airport of Destination (6)	Flight/date / for Carriage Use Only / Flight/date (7)	Amount of insurance	INSURANCE-If carrier offers insurance and such insurance is required in accordance with the conditions there of, indicate amourt to be insured in figures in box marked "amount of insurance".

Handling Information (8)

No. of pieces RCP (9)	Gross Weight (10)	kg / lb / k	Rate class / Commodity Item No.	Changeable Weight	Rate / Charge	Total	Nature and Quantity of Goods (incl. Dimensions or Volume) (12)

Prepaid / Weight Charge	Collect	Other Charges	
Valuation Charge			
Tax			
Total Other Charges Due Agent			
Total Other Charges Due Carrier		Shipper certifies that the particulars on the face here of are correct and thaat in so far as any part of the consignment contains dangerous goods, such part is properly described by name and is in proper condition for carriage by air according to the applicable dangerous goods Regulations.	
50		Signature of shipper or his Agent	
Total Prepaid	Total Collect	(11)	
Currency Conversion Rates	C C Charges in Dest Currency	Executed on (date) at (place) Signature of Issuing carrier or its Agent	

For Carrier's use only at Destination	Charges at Destination	Total Collect Charges	
ORIGINAL 3 (FOR SHIPPER) A			